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Rubber Research Scheme (Ceylon)

Combined Quarterly Circulars for 1948

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Rubber Research Scheme (Ceylon).

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CONTENTS

ORIGINAL ARTICLES

PLANTING NOTES

MEETINGS

NOTICES

DARTONFIELD ESTATE — VISITORS' DAY

The services of technical officers are available to visitors on the second Wednesday in each month; the estate superintendent is available every Wednesday. Visitors are requested to arrive on the estate not later than 9-30 a.m.

Visitors will be welcomed at the station on other days provided an appointment has been made in advance.

Dartonfield Estate is situated about 3½ miles from the main Matugama-Agalawatta Road, the turn-off being near culvert No. 14/10. The distance from Colombo is approximately 47 miles.

PUBLICATIONS

Rubber Research Scheme publications comprising Annual Reports, Quarterly Circulars and occasional Bulletins and Advisory Circulars are available without charge to the Proprietors (resident in Ceylon), Superintendents and Local Agents of Rubber estates in Ceylon over 10 acres in extent. Forms of application for registration may be obtained from the Director. Extra copies of publications can be supplied to the Superintendents of large estates for the use of their assistants.

ADVISORY CIRCULARS

The undernoted Circulars may be obtained on application at 25 cents per copy. Future issues in the series will be sent free of charge to estates registered for the receipt of our publications:—

(1) Notes on budgrafting procedure (revised June, 1943).
(3) Notes on Rubber seedling nurseries. (Revised September, 1943).
(4) Contour lining holing and filling, cutting of platforms, trenches and drains (revised June, 1943).
(5) Straining box for latex (January, 1940).
(6) Notes on the care of budded trees of clone Tjirandji 1 with special reference to wind damage (September, 1938).
(8) Planting and after-care of budded stumps (revised June, 1943).
(10) Root disease in replanted areas (August, 1939).
(14) Rat Control (September, 1940).
(17) Tapping young budded trees (Revised 1947) and two Supplements.
(18) Rubber manuring under wartime conditions. (November, 1942).
(19) Density of Planting and Thinning-out. (December, 1942).
(20) Planting material recommended for use (1944). (Revised May, 1944) and Supplement.
(21) The Control of Bark Rot and Canker. (April, 1944).
(22) Oidium Leaf Disease. (April, 1944) and two Supplements.
(23) Uniformity in the Nomenclature of Clones and Clonal Seedlings. (December, 1944).
(24) Treatment of Brown Bast. (December, 1944).
(25) Ground Covers. (January, 1945).
(26) Clonal Seed as Planting Material. (July, 1947).
(27) Collection and Planting of Clonal Seed. (April, 1949).

AGRICULTURAL EXPERIMENTAL WORK OF THE RUBBER RESEARCH SCHEME

1939 CLONE TRIAL, FIELD 6A, NIVITIGALAKELE.

C. A. de SILVA, *Botanist.*

THE introduction in the above series of articles was published in the Combined 3rd and 4th Quarterly Circulars for 1947, page 3. The present series commences with the 1939 clone trial at Nivitigalakele in connection with breeding and selection work.

Site of Experiment

The area chosen for this experiment is a 10 acre strip of crown jungle in the Kosgahahena area of Nivitigalakele, later called Field 6A. The gradient of the land is steep facing the West.

Method of Opening, Planting and Manuring

The jungle was opened by felling and a medium burn of all timber left on the land. Holing was done on the contour spaced 16 ft. by 20 ft. which gave a final stand of 110 trees per acre. Silt pitted drains were cut between the contours. Cover crop seed consisting of equal proportions of Centrosema pubescens, Calopogonium, Crotalaria anagyroides was sown at the rate of 6 lbs. per acre. 332 trees of Albizzia moluccana were also planted 16 feet apart below each third contour row. The retention of the high cover up to 1945 led to serious competition. Albizzias in 3 blocks were eliminated in 1942, and the remainder in 1945.

The area was planted with 44 clones consisting of the following material :—

29 Tjikadoe seedlings clones (NAB.1-23, RR. 11, 12, 13, 14, 15, 19)
3 Stock marcot clones (RR. 16, 17, 18).
4 Estate mother tree clones (B.4, B.5, DK. 2, PWT. 2)

Control

4 Standard imported clones (TJ. 1, TJ. 16, PB. 86, GL. 1)
4 Promising local clones (MK. 3/2, WG. 6278, BS. 3, DBK. 1)

clones

Total 44

Information on 29 clones from Tjikadoe seedlings is given in Table 1A and 1B showing the basis on which these clones, later called NAB, and RR. clones, were established. This information is particularly interesting for comparison with the performance of these clones for yield and growth given later in this article in Tables II and III.

The planting was carried out according to the experimental layout in June 1939, the plants being supplied as budded stumps. 880 points completed the experiment, and another 139 points were supplied with extra plants of the various clones and twinned seedlings as a subsidiary observational experiment.

Manuring

Owing to the sharp gradient of the land considerable soil wash was observed during the early years and growth of rubber was poor. From 1940 all plants were manured with a complete mixture R215 according to our general recommendations for manuring young rubber; in addition to this, extra manure doses were given to plants in 4 backward blocks in 1945. From 1946 manuring with a complete mixture R400 was carried out as for mature rubber. Manure was available at the rate of 400 lbs. per acre for half the total acreage under the Fertiliser Rationing Scheme adopted in Ceylon. All trees in the clearing were manured with a half dose per annum to satisfy experimental requirements.

Design and scope of Experiment

The experimental layout consists of 20 polyclone blocks, each block with 44 single tree plots representing the 44 clones under trial. The 44 clones were 'randomised' within each block. The experiment provided a satisfactory variability of growing conditions for each clone, but the statistical calculations with 880 plots proved unwieldy. The statistical analyses for growth measurements were carried out only on 3 occasions, when it was necessary to make a critical examination of the figures. Yield data were examined by statistical analyses for 2 consecutive years, when a final selection of the better yielding clones was made for further large scale trial on a semi-commercial basis. It should be remembered, however, that yield is not the only criterion on which a selection of clones is made; considerable attention has to be paid to secondary characters. It has been possible to use the more modern incomplete block layout designs for a large number of varieties in subsequent experiments, which involve fewer calculations of a more complicated nature.

Growth Measurements

Girth measurements of all trees were taken at a height of 3 feet from the union from 1940 to 1945 in June of each year. After the area was brought into tapping in 1945, girth measurements were taken at a height of 4 feet from the union in January of each year from 1946. The mean girth figures for all clones are summarised in Table II for 9 years, together with the average increment figures for all clones from year to year. Results are given of statistical examinations of girth measurements on 3 occasions. Most of the clones selected for further trial on a large scale show girth measurements above average in 1948.

TABLE I A

NAB. Clones from Tjikadoe Seedlings Planted 1928 on an outside Estate

Seedling mother tree no.'s	Girth in inches at 40" height (1938)	No. of latex vessel rows	Yield per tapping in grams 2S/2, d/4, 100%	Yield in grams per inch of tapping cut (1938)	Clone Established
65A	45.5	22	164	3.2	NAB. 1
209B	40.0	16	134	2.8	,, 2
233B	34.0	18	158	3.9	,, 3**
240B	39.0	21	139	2.9	,, 4
253B	39.0	19	119	2.6	,, 5
269B	34.0	18	111	2.8	,, 6
440C	26.0	24	126	3.1	,, 7
475D	36.0	24	130	2.8	,, 8**
668D	35.5	26	109	2.5	,, 9
985E	46.0	16	180	3.2	,, 10
1398F	36.5	26	155	3.4	,, 11**
1577F	36.0	18	135	3.1	,, 12**
2157G	38.5	20	101	2.0	,, 13
2176G	37.0	24	120	2.6	,, 14
2417H	40.0	27	185	3.6	,, 15**
2441H	29.5	25	165	4.4	,, 16**
2567H	30.0	37	227	5.8	,, 17**
2651H	26.5	25	126	3.7	,, 18
2861H	38.5	19	136	2.7	,, 19
3085I	35.0	25	146	3.2	,, 20**
3092I	32.0	24	144	3.5	,, 21
3261I	45.5	30	131	2.5	,, 22
3354I	36.5	17	158	3.9	,, 23

** Clones selected for further trial in 1947.

TABLE I B

RR. Clones from Tjikadoe Seedlings Planted 1932, Nivitigalakele

Seedling Mother tree No.	Girth in inches at 3 ft. (1938)	No. of latex vessels rows	Yield per tapping in grams S/2, d/2 100%	Yield in grams per inch of tapping cut (1938)	Clone Established
3	27.0	15	20	1.3	RR. 11
53	24.0	16	22	1.6	RR. 12
116	21.0	11	21	1.8	RR. 13
126	22.0	—	21	1.6	RR. 14
135	24.0	13	23	1.7	RR. 15
190*	45.0	—	92	4.6	RR. 19**

* Tjikadoe seedling at Wagolla Experimental Station about 10 years old.
** Clones selected for further trial in 1947.

Considering that this area was opened in virgin jungle the yearly increment rates have on the whole been rather poor except in 1943, 1946 and 1947. 1943 and 1946 are incidentally the years immediately following the removal of Albizzias in 1942 and 1945. Unfortunately the method of planting these Albizzias was not strictly in keeping with the statistical layout and an accurate checking up of the point of competition between the high cover and the young rubber was not possible. It has been the writer's experience, however, that the high cover planted in large numbers and kept too long in clearings, can seriously set-back the growth of the rubber. The drop in the rate of growth in 1948 is understandable after 3 years tapping. The increment in girth of 4.15 inches in 1947 after the trees were tapped for two years is not normal.

Yield Results

To obtain information on the performance of the new material planted in this trial the first group of trees within each clone reaching a tappable girth of 18 ins. at a height of 3 feet from the union was tapped from March, 1945.

The yield results summarised in Table III are based on 2 sample tappings per month carried out under the strict supervision of a trained assistant. On sample tapping days the latex yield of each tree is coagulated in the cup together with the scrap of the previous tapping. The coagulum from each tree is then filed according to the clone and number of each tree. The files are then transported to a field laboratory, where the coagulum of each tree is accumulated in correctly labelled duplicate files. The rubber biscuits in the files are periodically dried and weighed. The periods adopted were once a quarter or half yearly. The accumulated biscuits of 6 to 12 tappings in each file are dried for 10 days in a drying house and weighed. These preliminary weights are regarded as "wet' weights. A further correction for moisture depending on the conditions of drying and size of biscuits brings the final dry weights in keeping with the normally finished product of dry rubber.

The best of the control clones is Prang Besar 86, confirming the high yielding qualities of this clone. The first selection of clones compared with the control was made in 1946-47 based on the yield per inch of cut per tapping. Although this method only partially eliminates the variability in yield due to growth, it was considered a satisfactory criterion for early selection. Attention was also given to secondary characters which will be further checked, when the clones are planted in a large scale clone trial in 1950 on a semi-commercial basis. The first 5 selected were clones NAB. 15, 16, 17, 20 and RR. 19, the last of these which showed early promise has not come up to expectations. A further selection of 4 clones was made in 1947-48, NAB. 3, 8, 11 and 12, the last has shown an appreci-

able improvement in yield in 1948 and compares very favourably with the yields of the earlier selections. Clones NAB. 8 and NAB. 17 have shown a somewhat high incidence of Brown Bast which requires further checking up.

These selected clones are of particular importance as the high yields have been obtained under average conditions of growth in Ceylon. The yields and growth of these clones can be expected to depart less from their reputed standards than imported clones tested under more favourable conditions of growth in outside countries.

Arrangements have been made to supply small quantities of this budwood to outside estates at the earliest opportunity so that the performance of the clones in various localities can be studied while the main trial at Dartonfield is being conducted to reach a final decision on the large scale planting of the best of the selected clones.

Acknowledgment is here made of the early work of selection of the NAB. and RR. clones by Dr. C. E. Ford, one time Geneticist of the Rubber Research Scheme of Ceylon.

TABLE II

Mean Girth Measurements In Inches

Clone	1940	1941	1942	1943	1944	1945	1946	1947	1948
NAB. 1	2.36	4.02	6.60	11.55	15.10	17.66	21.61	26.11	27.95
" 2	2.32	4.02	6.71	11.06	14.74	17.21	21.12	26.25	28.68
" 3	2.01	3.55	5.93	9.00	12.12	14.01	17.29	20.95	22.30*
" 4	2.07	3.86	6.33	10.24	13.80	16.11	19.73	24.56	26.14
" 5	2.32	4.15	6.88	11.36	14.74	17.11	20.10	23.76	25.31
" 6	1.95	3.27	5.65	9.21	12.44	14.50	17.68	21.86	23.34
" 7	1.88	3.30	4.83	7.85	10.62	12.43	15.89	19.21	20.40
" 8	2.01	3.64	6.62	10.96	14.35	15.35	18.60	24.25	26.08*
" 9	2.32	4.08	6.84	11.16	13.89	16.18	19.59	22.96	24.12
" 10	1.95	3.33	5.42	9.11	11.71	13.45	16.33	19.46	21.22
" 11	2.23	4.18	6.92	11.59	15.38	17.84	20.83	24.36	25.44*
" 12	2.14	4.02	6.79	11.43	14.90	17.50	19.80	24.60	26.42*
" 13	1.95	3.55	5.83	9.50	12.02	14.20	17.20	21.10	22.98
" 14	2.01	3.55	5.89	9.27	12.50	14.93	18.25	22.76	23.64
" 15	1.92	3.68	6.93	11.81	15.66	18.23	21.58	25.84	26.91*
" 16	1.79	3.24	5.85	10.16	13.36	15.40	18.60	22.66	23.44*
" 17	2.04	4.15	7.25	12.21	15.40	17.95	20.29	24.86	26.18*
" 18	2.39	4.18	6.72	11.23	15.02	17.64	21.24	25.22	25.76
" 19	2.01	3.64	6.53	11.64	15.74	18.74	23.43	28.72	31.81
" 20	2.17	4.15	6.98	11.83	15.58	18.15	21.26	25.39	27.09*
" 21	2.07	3.30	5.89	9.76	12.84	15.26	18.76	22.84	24.08
" 22	2.45	4.21	6.78	11.62	15.22	17.76	21.79	26.56	29.24
RR. 23	1.88	3.86	6.39	10.45	14.11	16.56	20.41	25.39	26.94
11	2.20	3.58	6.31	9.85	12.46	14.38	17.26	21.44	22.86
" 12	2.04	3.58	6.36	10.50	13.30	15.42	19.15	23.87	24.80
" 13	2.26	3.96	6.10	9.46	12.50	14.35	17.65	21.47	21.82
" 14	2.73	4.46	7.09	10.89	13.05	14.48	16.84	20.65	21.06
" 15	2.04	3.20	5.95	9.89	13.10	15.20	17.91	21.54	22.30
" 16	2.29	4.05	6.38	10.18	12.78	14.36	17.39	21.66	23.83
" 17	2.17	3.71	6.03	9.29	12.58	14.95	18.46	23.19	24.48
" 18	1.88	3.36	5.73	8.68	11.84	13.53	17.06	20.95	22.39
" 19	1.88	2.98	4.99	8.33	11.72	13.81	17.30	21.34	23.05*
B. 4	1.88	3.36	5.65	9.46	12.62	14.66	18.03	22.42	23.38
B. 5	1.88	2.98	5.10	7.84	10.95	12.68	16.13	20.17	21.67
DK. 2	2.14	3.80	6.06	9.85	12.85	14.58	18.35	22.30	24.59
PWT. 2	2.01	3.90	6.40	10.80	14.16	16.09	19.68	24.45	25.74*
BS. 3	1.48	3.05	5.31	8.78	11.56	13.39	16.48	20.11	21.66
DBK. 1	1.82	3.17	5.53	9.29	11.95	13.85	16.49	19.63	20.84
MK. 3/2	2.23	3.99	6.63	11.33	14.52	16.83	20.14	24.10	25.93
WG. 6278	1.98	3.64	5.91	9.61	12.56	15.20	18.80	21.94	22.93
GL. 1	2.17	3.68	5.90	9.75	12.26	14.36	17.73	21.15	22.58
PB. 86	2.64	4.15	6.58	11.10	14.39	16.63	19.68	24.39	25.01
TJ. 1	1.67	3.36	5.76	10.05	13.30	14.90	18.43	22.30	24.04
TJ. 16	2.10	3.68	6.34	10.94	14.41	16.54	18.83	22.94	23.02
Means	2.08	3.69	6.19	10.22	13.41	15.55	18.84	22.99	24.40
Sig. Diffs. (.05)	0.21		0.35					1.75	
Increase in girth		1.61	2.50	4.03	3.19	2.14	3.29	4.15	1.41

The Control Clones are Italicised.

* Clones selected for further trial on yield and secondary characters.

TABLE III

Serial No.	Clone	No. of trees tapped				Yield in grams per tree per tapping*				Brown Bast trees
		45/46	46/47	47/48	48/49	45/46	46/47	47/48	1948!!	
1	NAB. 1	10	20	20	20	7.4	13.0	19.0	21.6	—
2	„ 2	10	18	19	20	6.0	11.9	17.3	22.4	1
3	„ 3	5	18	17	18	9.3	13.4	19.6	32.9!	3
4	„ 4	8	20	20	20	6.7	12.0	17.1	23.5	—
5	„ 5	8	19	19	18	6.5	11.8	17.5	23.5	1
6	„ 6	5	16	20	20	5.0	9.0	10.7	16.6	—
7	„ 7	—	9	18	16	—	8.9	14.3	21.9	4
8	„ 8	8	18	18	17	9.3	14.7	25.5	29.4!	6
9	„ 9	9	17	20	20	6.2	8.4	11.3	15.2	—
10	„ 10	2	13	14	16	8.7	11.3	13.5	13.7	4
11	„ 11	11	20	20	20	8.6	15.7	23.4	32.6!	—
12	„ 12	9	19	18	19	9.6	16.1	27.4	40.1!	1
13	„ 13	1	16	20	20	3.4	4.9	7.2	9.7	—
14	„ 14	6	19	19	19	5.0	8.5	13.9	18.4	—
15	„ 15	9	20	20	20	14.3	21.7	37.6	40.1!	1
16	„ 16	8	18	20	20	16.4	21.5	30.4	30.8!	—
17	„ 17	12	19	20	20	16.5	25.6	39.7	40.0!	5
18	„ 18	10	19	19	19	4.5	10.2	17.1	27.6	1
19	„ 19	10	20	19	19	7.0	11.2	17.2	25.5	1
20	„ 20	11	20	20	20	11.1	20.5	33.1	50.5!	2
21	„ 21	6	19	14	13	9.5	14.1	20.9	21.0	8
22	„ 22	10	20	20	19	6.3	11.1	19.5	25.4	—
23	„ 23	8	20	20	20	4.2	6.7	11.2	14.8	—
24	RR. 11	6	14	19	19	10.5	14.9	15.3	16.5	1
25	„ 12	9	18	19	19	7.5	11.6	13.0	15.5	—
26	„ 13	4	16	16	14	6.3	9.2	8.9	11.8	7
27	„ 14	4	16	19	19	9.0	11.8	15.9	19.8	—
28	„ 15	7	17	18	19	12.3	14.7	18.5	17.7	1
29	„ 16	3	18	20	20	4.0	5.4	7.8	10.4	—
30	„ 17	7	19	18	19	4.3	7.8	11.4	12.2	1
31	„ 18	1	18	20	19	3.4	5.7	9.5	13.3	1
32	„ 19	2	16	18	20	13.8	14.5	17.2	20.9!	2
33	B. 4	4	18	20	20	6.3	7.6	9.2	9.6	—
34	B. 5	1	13	18	18	7.2	9.7	12.4	15.5	1
35	DK. 2	7	17	19	19	5.8	9.7	14.2	20.7	—
36	PWT. 2	8	19	20	20	3.7	7.2	11.4	14.5	—
37	*BS. 3*	3	15	18	19	9.4	8.3	8.8	10.9	—
38	*DBK. 1*	6	11	14	17	7.9	12.0	15.2	17.5	1
39	*MK. 3/2*	11	20	18	19	7.0	12.9	18.6	23.6	2
40	*WG. 6278*	5	17	19	19	6.8	11.1	14.9	22.4	1
41	*GLS. 1*	2	19	20	19	13.0	15.5	22.7	25.4	2
42	*PB. 86*	9	20	20	20	12.7	19.8	27.3	30.9	1
43	*TJ. 1*	7	17	19	18	8.5	15.2	19.1	29.9	2
44	*TJ. 16*	11	19	20	19	7.4	10.2	14.7	13.5	2
Mean						8.1	12.2	17.5	22.0	
Error								1.4	1.7	
Sign. Diff. .05								3.9	5.0	

The Control Clones are Italicised.

* Approximate conversion to lbs. per tree per year of 140 tappings x0.3084.

! Clones selected for further trial on a semi commercial scale.

!! Yields taken from March to December 1948.

YIELDS OF BUDDED RUBBER AND CLONAL SEEDLINGS IN COMMERCIAL TAPPING

C. A. de SILVA, *Botanist*

THE present series of articles under the above caption were started in the Combined Third and Fourth Quarterly Circulars for 1945, Vol. 22, Parts 3-4, and took the place of previous articles entitled 'Ceylon Clones' and 'Performance of Imported Clones in Ceylon.' The second article in the present series on the yields for 1945 will be found in the Combined First and Second Quarterly Circulars for 1947, Vol. 24, Parts 1-2.

The yields for 1946 and 1947 have been received in response to the 5th and 6th questionnaires sent out to estates through the courtesy of their agents. Owing to a shortage of staff during the past two years the 1946 yield results had to be deferred until the publication of the present article. The response to the 6th questionnaire has been particularly satisfactory and yield returns from 66 estates with a total acreage of approximately 6,500 acres, have been examined. While a number of new estates have been included in the collation of yield results, the information already published in a few cases is at a standstill owing to the failure of a few estates to send in their returns.

There has been a considerable difference of opinion on estates in the choice of a criterion of growth for commencement of tapping, leading to some difficulty in bringing the yields within and between estates to a strictly comparable basis. Variations in soil conditions from field to field must also be taken into account. Too much reliance must, therefore, not be placed on individual comparisons. Comments on the various clones are based on a general survey of the yield results as a whole and the writer's experience of the performance of these clones in the experimental stations of the Rubber Research Scheme.

Older Clones.—TJ. 1, TJ. 16, BD. 5, BD. 10, AV. 49 and AV. 50. Table I gives the yields from estates where more than one of these clones have been tapped. Areas of less than 5 acres have been discarded and yields from polyclone areas are useless for differentiating the yields of individual clones. 70 trees per acre have been fixed as a minimum, except for the first tapping year in which a smaller number of trees per acre has been considered to provide a better picture of the continuity in yields.

Clone TJ. 1—remains the most widely planted clone, showing in most cases the highest yields per acre. On estate No. 284 a serious outbreak of Brown Bast occurred due to excessive tapping. The trees have recovered after a reduction in the intensity of tapping to 67 per cent. On 19 acres the yields were over 1,000 lbs. per acre in the 6th year of tapping. The incidence of Brown Bast, precoagulation in the field and wind damage are undesirable features of the clone and call for careful supervision during the early years. Under the present market conditions the clone is not favoured owing to its yellow latex.

Clone TJ. 16.—In all cases the yields of this clone are of a lower order than clone TJ. 1 in the wet low country districts. The clone is recommended for the drier districts and has given satisfactory results in the Kurunegala and Matale districts, on estates No. 168 and No. 372 respectively.

Clone BD. 5.—The yields of this clone compare very favourably with Clone TJ. 1, and in a few cases the clone has given higher yields than TJ. 1. Clone BD. 5 is known to be particularly susceptible to Phytophthora and panel diseases and is not recommended on this account. No adverse reports on secondary characters have, however, been sent in from estates.

BD. 10.—The undesirable characters of this clone seem to have been over-stressed in the past. The clone does well on poor soils and results from 3 estates show that the yields are very satisfactory compared with TJ. 1.

Clone AV. 49 and AV. 50.—Both these clones have reached over 700 lbs. per acre, but are not up to the standard of the other high yielding clones.

Clones Glenshiel 1, PB. 86 and HC. 28.—Yield results of these three clones have come in from several new sources and where possible these yields are compared with clones TJ. 1 and TJ. 16 in Table II.

Clone Glenshiel 1.—The yields of this clone compared with those of TJ. 1 and TJ. 16 justify its inclusion in our lists for large scale planting. Its yielding capacity per tree is high and the lighter crown of clone GL. 1 renders it more resistant to wind damage than most clones. Experimental tapping on a 3 acre replanted area at Dartonfield shows that the clone is capable of yielding 12.5 lbs. of dry rubber per tree per annum in the 7th year of tapping on a 67 per cent tapping intensity.

The incidence of Brown Bast in the early years of tapping is greatly minimised by adopting a 67 per cent tapping intensity, and the indications are that the reduced intensity can be adopted permanently with very satisfactory results.

Clone PB. 86.—The results in Table II are very encouraging. There is little doubt now that the clone is a reliable high yielder. Experimental tapping at Dartonfield and outside confirms this opinion. The clone stands up to 100 per cent intensity tapping and no adverse reports have been sent in on secondary characters. At the present time the clone is highly favoured on account of its white latex. Compared with clones TJ. 1 and GL. 1 clone PB. 86 has not been badly affected with Oidium at Dartonfield. Many outside estates have had the same experience. The acreage of this clone can be profitably increased on most estates.

Clone HC. 28.—The yields of this clone are very satisfactory compared with TJ. 1. On Estate No. 372, it shows the highest yield with clones GL. 1 and PB. 86 in the third year of tapping. The clone is somewhat resistant to Oidium and is under special observation on this account. Unfortunately HC. 28 has a very yellow latex and it is unlikely that estates will replant further with this material.

Several enquiries have been made on the yielding capacity of the better known clones in the various rubber planting districts of Ceylon. An attempt has been made in Table III to give the results for districts on a broad basis. The table shows the actual average yields per acre, which have been obtained, irrespective of the tapping systems that have been adopted. The yields must be taken in close conjunction with the acreages on which the average yields have been calculated. With the advance in tapping years, there is a sharp falling off in total acreage tapped. A table of this nature can only be perfected over a number of years, when it will be possible to make a reliable estimate of the yielding capacity of clones on an adequate acreage in each of the districts under consideration.

Local Clones; MK. 3/2 and WG. 6278.—On most estates these clones have only just come into tapping. The early yields from clone MK. 3/2 were received from 2 estates, one of these from an area of over 50 acres. One estate sent in returns for clone WG. 6278, with a yield of over 600 lbs. in the second tapping year on 14½ acres. For an estimate of the potentialities of these clones, we have still to fall back on the yields of the original buddings at our experimental station planted in 1928. Yields available up to the end of 1946 have been very satisfactory, clone WG. 6278 is the more moderate yielder of the two. Both these clones have come into favour in recent years for white latex. At present the clones are recommended for large scale planting in the wet low country districts.

New Clones, AV. 255, AV. 352, PR. 107, WAR. 4, K. 1, BD. 17, LUN.N PB. 6/5, PB. 6/9, PB. 5/60, PB. 5/139, PB. 5/122. These clones have been recommended for planting on a small scale. No yields of these clones have been sent to us in the returns for 1947, except in one case where the early yields of a few trees of "fraction" PB. clones were included. The writer is aware that on many estates this material was introduced into nurseries, but was not put out for trial on a small scale. The Rubber Research Scheme is not in a position to try out these clones on a sufficient scale to recommend them for large scale planting in the various districts. From the limited information at our disposal from areas planted in 1939 and 1940, clones PR. 107, AV. 255, PB. 6/50, PB. 5/60 have given indications of promise in the first tapping year, under the conditions of growth in our experimental stations. Clones WAR. 4, BD. 17, LUN.N, PB. 5/139 are yielding only moderately well under the same conditions. PB. 6/9 with very promising results is highly susceptible to Oidium leaf disease, being defoliated several times each year. AV. 352 has done poorly and is not recommended at the present time owing to its susceptibility to wind damage.

It will not be out of place to comment on the stand per acre of budded rubber on estates, as indicated in the yield returns sent to us. Our recommendations of an initial stand of 145 trees to the acre has not materialised in practice. Due to the terrain of most rubber growing lands in Ceylon, estates starting to hole on a theoretical stand of 145 trees per acre have realized only about 120 planting points. By the 10th year of age the average stand per acre is 109. The difficulty of reaching a 1,000 lbs. per acre yield limit and maintaining this yield level in subsequent years, with further losses of trees, is showing up on a number of estates, even with the best yielding clones. One estate "B" in Table I with 150 tappable trees has obtained over 1,000 lbs. per acre in the 3rd year of tapping.

We have drawn the attention of the planting public since 1943 to the desirability of adopting a high initial stand for budded rubber, up to a maximum of 180 planting points per acre under certain conditions. The writer is aware that many estates have in recent years adopted a higher initial stand than hitherto. This is a very sound policy, as it provides for the early losses of trees due to wind damage and diseases like Brown Bast and canker. With present labour conditions it is essential to have an economic stand per acre throughout the tapping history of a clearing.

Clonal Seedlings

PBIG. Seedlings.—Yields of seedling trees from the Prang Besar Isolated Gardens have been sent in from 11 estates. These are presented in Table IV, according to the year of tapping, with yields of budded rubber of approximately comparable age and growing conditions. In many cases the seedlings have been planted at a higher stand per acre than buddings

TABLE I.

Yields of clones in commercial tapping and age in years.

Estate	District	Clone	Acres	6		7		8		9		10		11		12		13		14		15		16		17	
				Yield	%	Yield	%	Yield	%	Yield	%	Yield	%	Yield	%	Yield	%	Yield	%	Yield	%	Yield		Yield	%	Yield	%
822	Passara	TJ. 1	26																	811	100	818	100	633	100	778	100
		BD. 5	14																	581	72	520	64	495	78	616	79
284	Kalutara	TJ. 1	19-	382	100	556	100	732	100	798	100	944	100	1050	100	1130	100										
		TJ. 1	61-203									768*	81	877*	84	708*	63	663*		643*		665*		885*			
		TJ. 16	9- 62	154	40	281	51	400	55	575	72	522	81	556	53	513*	45	479*		679*							
		BD. 5	42-102					430	59	674	84	844	89	1073	102	1152	102	1293		1052		1170					
		AV. 50	22					316	43	608	76	617	65	715	68	716	63	625		740							
		PB. 25	17	448	117	391	70	523	71	506		553*															
350	Kalutara	TJ. 1	10	346	100	582	100	608	100	554*	100	626*	100														
		TJ. 16	10	319	92	567	97	645	106	458*	83	539*	86														
		BD. 5	10	348	100	528	91	498*	82	596*	108																
		BD. 10	10			566	97	617	101	533*	96	597*	95														
218	K. V.	TJ. 1	8									777	100	866	100	1052	100	1010	100	1042	100	840*	100				
		BD. 5	7									741	95	817	94	1080	103	766	76	943	90	581*	69				
		BD. 10	8									872	112	949	109	1090	104	851	84	975	94	744*	89				
		AV. 50	5									475	61	648	75	880	84	743	74	764	73	695*	83				
688	Ratnapura	TJ. 1	21-81							289	100	359	100	511	100	657	100	821	100	660†	100	504†					
		TJ. 16	66									218	61	306	60	266	89	350	43	324	49						
		BD. 5	70							200	69	378	105	472	92	446	67	488	59	373†	56						
		AV. 50	21-61							442	153	503	140	607	119	711	106	703	86	377†	57						
128	Kegalle	TJ. 1	43-65	416	100	662	100	898	100																		
		TJ. 16	25	258	62	428	65	568	63																		
316	Ratnapura	TJ. 1	7-8											394	100	616	100	748	100	821	100	886	100	750	100	682*	
		TJ. 16	22							630		519		593	150	657	107	548	73	621	76	561	62	499*	66		
166	Kalutara	TJ. 1	61	506	100	526	100	614	100	898	100																
		BD. 5	25	329	65	462	88	509	82	936	104																
26	K. V.	TJ. 1	29			433	100	665	100	796	100	835	100														
		BD. 5	24			554	125	800	120	875	110	1047	125														
153	Kalutara	TJ. 1	31	387	100	537	100	743	100	764	100	804	100														
		BD. 5	19	371	96	466	87	782	105	792	104	836	104														
476	Galle	TJ. 1	11-22					346		512	100	591	100	732	100	1112*											
		AV. 49	9							440	86	696*	117	405*	55												
546	Kegalle	TJ. 1	11			495	100	777	100	898	100	1098	100	1228	100												
		AV. 49	7			504	101	642	83	623	70	768	70	852	69												
168	Kurunegala	TJ. 16	5					829	100	982	100	1225	100	1147	100	969	100	685	100	828	100	884	100				
		AV. 49	6					601	72	624	63	994	81	814	71	851	88	524	76	888	107	694	79				
372	Matale	TJ. 1	17½			443*	100	681	100																		
		TJ. 16	15½			337*	76	694	102																		
A	Kegalle	TJ. 1	13	456	100	599	100	820	100	729	100	771	100														
		TJ. 16	5	168	37	283	47	487	60	377	52	444	58														
616	Negombo	TJ. 1	20			218	100	428	100	641	100	833	100	960	100	1028	100										
		BD. 5	6			276	127	338	126	406	63	981	118	1108	115	1116	109										
B	Kegalle	TJ. 1	10	770	100	904	100	1040	100																		
		BD. 5	10	353	46	584	65	784	75																		
356	Kalutara	TJ. 1	18					250	100	274	100	532	100														
		TJ. 16	18					273	109	286	104	494	93														
		BD. 5	18					284	114	300	109	598	112														
		BD. 10	18					251	104	238	87	579	109														
		PB. 25	18					198	79	236	86	505	95														
152	Kalutara	TJ. 1	15			320	100	466	100	599	100	854	100	1032													
		BD. 5	33			197	62	379	81	623	104	734	86														
131	Kalutara	TJ. 1	13-27	226	100	393	100	529	100	619	100	1018	100														
		BD. 5	7	189	84	262	67	402	76	671	108	870	85														

* Reduced intensity to 67% owing to Brown Bast

† Reduced intensity to 100% from 133%

TABLE 11.

Yields of clones GL. 1. TJ. 1. TJ. 16. PB. 86. HC. 28. In pounds of Dry Rubber.

Estate No.	Clone	Acres	Trees per acre		6 Years		7 Years		8 Years		9 Years		10 Years		11 Years		12 Years		13 Years	
			Total	In Tapping	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree	Per ac.	Per tree
141	GL. 1	19	140	36-125-134	136	3.8	326*	3.9	685*	5.5	729*	5.5								
	TJ. 1	25	140	58-118-121	225	3.9	447	3.8	709	6.0	812	6.7								
546	GL. 1	1.5	144	126-127-119			299	2.4	377	3.0	822	6.5	952	7.5	966	7.6				
	PB. 86	1	129	118-119			497	4.2	817	6.9	747	6.3	1246	10.5	1272	10.7				
	TJ. 1	11	141	133			495	3.7	777	5.8	898	6.7	1098	8.3	1228	9.2				
172	GL. 1	9	158	91-112			330	3.6	925	8.2										
	TJ. 1	22	119	90-97			259	2.9	554	5.7										
350	GL. 1	10	117	95-117-123			658	6.9	710	6.1	461*	3.7	684*	5.6						
	TJ. 1	10	117	96-102-103			582	6.1	608	6.1	554*	5.4	626*	6.1						
	TJ. 16	10	117	102-104			567	5.5	645	6.5	458*	4.5	539*	5.2						
	PB. 86	10	120	101-104-109	407	4.0	549	5.4	568*	5.5	651*	6.0								
	TJ. 16	10	116	99-101-103	392	3.9	544	5.4	455*	4.6	549*	5.3								
153	HC. 28	5	144	129-130-125	4		401	3.1	563	4.3	639	5.1	722	5.8						
	TJ. 1	21	128	115-117-109-105			583	5.1	838	7.2	785	7.2	842	8.0						
152	HC. 28	14	99	91-96-89					527	5.8	589	6.5	784	8.2	818	8.9	932	10.5		
	TJ. 1	8	108	100-98-96					544	5.4	727	7.3	841	8.7	891	7.8	1184	12.3		
130	GL. 1	25.5	115	79-			360*	4.6												
	TJ. 1	36	109	91-			603*	6.6												
	TJ. 16	50	114	83-			408*	4.9												
	PB. 86	12	117	106-			477*	4.5												
	PB. 86	12.5	130	106-			370	3.5												
107	GL. 1	7	111	73-29	479†	6.6	439**	15.0	427	6.1										
	TJ. 1	79	123	115-93	473†	4.1	610**	6.6	738	6.5										
284	GL. 1	8	133	111-104					607*	5.5	574*	5.5								
	TJ. 1	29	133	91-82					642*	7.0	560*	6.8								
808	GL. 1	14	117	73-			318*	4.4												
	TJ. 1	35.5	101	71-			236*	3.3												
	TJ. 16	14.3	134	75-			253	3.4												
134	GL. 1	21	121	118-117					365*	3.1	586*	5.0	611*	5.2						
	TJ. 1	22	128	109-118					286	2.6	414	3.5	472	4.0						
372	GL. 1	10.5	118	76-118			242*	3.2	574*	5.0	668	5.7								
	PB. 86	7	156	105-125			395*	3.8	592*	5.2	774	6.2								
	HC. 28	5	139	121-135			321*	2.7	521	3.9	806	6.0								
166	GL. 1	7.5	157	91-			502*	5.5												
	HC. 28	8.5	135	108-			480	3.6												

* Tapping started at or reduced to 67%.

** Tapping discontinued on trees under 21" girth.

† Tapped for 10 months only.

TABLE III

Clonal Yields for Districts

District	Kalutara								Kelani Valley								Ratnapura						Kegalle							
Clone	TJ.1		BD.5		TJ.16		GL.1		TJ.1		BD.5		TJ.16		GL.1		TJ.1		BD.5		TJ.16		TJ.1		BD.5		TJ.16		GL.1	
No. of Estates	23		12		10		13		22		7		8		6		14		4		8		6		3		5		2	
Age in Years	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.
6	643	350	54	349	37	332	17	435	259	221	—	—	10	259	4	99	158	241	—	—	—	—	199	417	17	369	26	258	2	399
7	1028	458	81	409	149	425	93	437	498	348	29	417	79	351	56	317	790	392	—	—	—	—	239	555	25	443	46	397	4	331
8	1193	567	219	456	262	454	64	509	659	435	73	454	66	288	152	366	809	510	15	410	93	322	193	730	25	642	54	482	4	539
9	915	657	232	561	144	509	48	532	816	485	106	451	22	333	67	529	568	578	60	271	41	573	117	794	—	—	23	485	4	666
10	742	702	194	685	108	535	14	496	421	705	37	595	5	591	21	611	281	598	85	374	91	507	77	882	—	—	23	575	4	985
11	287	847	108	788	33	558	—	—	218	845	—	—	5	942	4	482	93	616	85	627	91	614	10	703	—	—	—	—	2	966
12	264	826	108	921	33	670	—	—	81	916	—	—	5	910	4	751	93	726	85	611	91	618	10	830	—	—	—	—	—	—
13	195	705	71	802	18	648	—	—	56	984	—	—	—	—	—	—	93	859	85	615	91	664	—	—	—	—	—	—	—	—
14	95	643	71	923	18	751	—	—	56	871	—	—	—	—	—	—	90	767	85	547	88	473	—	—	—	—	—	—	—	—
15	95	640	84	793	—	—	—	—	48	739	—	—	—	—	—	—	50	631	29	532	22	499	—	—	—	—	—	—	—	—
16	27	867	42	1170	—	—	—	—	—	—	—	—	—	—	—	—	15	895	15	474	22	499	—	—	—	—	—	—	—	—
17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	862	—	—	—	—	—	—	—	—	—	—	—	—

District	Galle				Passara				Negombo				Kurunegala		Matale					
Clone	TJ.1		BD.5		TJ.1		BD.5		TJ.1		BD.5		TJ.16		TJ.1		TJ.16		GL.1	
No. of Estates	5		3		1		1		1		1		1		1		1		1	
Age in Years	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.	Ac.	lb. per ac.
6															17.5	116				
7	61	305							20	218	6	276			17.5	443	15.5	337	10.5	242
8	199	393							20	428	6	538	5.5	829	17.5	681	15.5	694	10.5	574
9	180	471	65	397					20	641	6	406	5.5	982					10.5	668
10	87	570	65	528					20	833	6	981	5.5	1225						
11	28	705							20	960	6	1108	5.5	1147						
12	18	1029			3	481			20	1028	6	1116	5.5	969						
13	18	799			29	686	14	544					5.5	685						
14	7	1165			36	698	14	581												
15	7	705			36	644	14	520												
16					34	539	14	595												
17					34	797	14	616												

TABLE IV

Yields of Prang Besar Isolated Garden Seedlings

Tapping System S/2, d/2, 100%

Estate	Date of planting PB. seedlings	Date budded in field (F) Budded stumps (S)	Acres	Control Clone	Yield in Pounds														
					1st Tapping Year				2nd Year			3rd Year			4th Year			5th Year		
					Age in years	No. of trees	Per acre	Per tree	No. of trees	Per acre	Per tree	No. of trees	Per acre	Per tree	No. of trees	Per acre	Per tree	No. of trees	Per acre	Per tree
613	6/38		3		5¾	148	548*	3.7	141	807	5.7	140	874	6.2	139	1031	7.4			
		6/38(S)	7	TJ.1	5¾		462*		130	641	4.9	125	792	6.3	129	911	7.0			
166	5/40		3½		6	84	323	3.9	98	674	6.9									
	1/39		5		5¼	183	541	2.9	154	801	5.2	107!	724	6.8	153	1106	7.2			
		6/38(S)	25	TJ.1	5½	88	547	6.2	112	603	5.4	97!	662	6.8	114	926	8.1			
152	6/38		5		5¾	157	507*	3.2	154	815	5.3	127	858	6.8	119	1007	8.5			
			5	PB.25	5¾	92	251*	2.7	124	446	3.6	127	609	4.8						
153	6/38		13		5¾	57	465*	8.1	85	499	5.9	109	630	5.8	107	871	8.1			
	6/39		23		5¾	72	286*	4.0	109	590	5.4	119	826	6.9						
		10/37(F)	21	TJ.1	5¾	115	412*	3.5	115	583	5.1	117	838	7.2	109	785	7.2	105	842	8.0
		6–12/37(S)	10	TJ.1	5½	101	333*	3.2	101	440	4.4	103	643	6.2	94	742	7.9	95	766	8.1
220	6/38		10½		5¾		251*		95	524	5.0	101	782	7.7	123	1019	8.2			
		6/38(S)	19	TJ.1	6¾	67	319*	4.8	68	518	7.6	68	552	8.1						
107	5/40		55½		6	106	434*	4.1	121	805	6.6									
		5/39(S)	79	TJ.1	6	115	474*	4.1	92!	610	6.6	113	738	6.5						
372	11/39		12½		5–6	105	329*	3.1	112	464	4.1	116	688	5.9						
	8/40	11/38(F)																		
		4/39(F)	17½	TJ.1	6–7	97	116**	1.2	111	443	4.0	113	681	6.0						
203	10/38		13		7	77	263*	3.4	123	627	5.1									
		10/37(S)	32	TJ.1	8	59	261*	4.4	82	542	6.6									
159	4/38		5½		8	115	663*	5.7	161	821	5.1									
		7/38(S)	17½	HC.28	8	78	303*	3.9	95	464	4.9									
536	1940		14⅛		5	29	78*	2.7	78	263	3.4	123	782	6.4						
		1939(S)		TJ.16	5	56	179*	3.4	58	288	5.0	102	491	4.8						
131	6/40		15		5¾	108	433*	4.0	137	643	4.7									
		5/41		PB.86	6	89	334*	3.8												

! Tapping discontinued on trees under 21" girth.

* Tapped from 8 to 10 months only.

** 6 months tapping.

The yields of clonal seedlings per acre, as well as on a per tree basis. compare very favourably with those of TJ. 1 and other high yielding clones included as controls. The potentialities of this clonal seed have, however, not been fully exploited in most cases by not adopting an initial high stand for selective thinning out in later years. The general indications are that clonal seed from this particular source can now be planted on a bigger scale. It is believed that most of the areas under review have been planted with seed from Plot C of the Prang Besar Isolated Gardens.

Tjikadoe Seedlings.—An estate planted with this seed imported from the Netherland East Indies in 1938 has obtained yields over 1,000 pounds per acre per year from the 11th to the 19th year of age with approximately 100 trees per acre. Second generation Tjikadoe seed from this same estate has given a yield of 458 lb. per acre in the 5th year of tapping and 968 lb. per acre on another estate in the same tapping year. This indicates the unreliability of second generation clonal seed, which is not recommended.

Sabrang 24, Illegitimate Seed.—On one estate illegitimate seedlings of SAB. 24 gave 534 lb. per acre in the 5th year of tapping with only 87 tappable trees per acre.

TJ. 1 'selfed' Seed.—One estate obtained 477 lb. per acre with 'selfed' TJ. 1 seedlings at 6 years of age, planted at 135 trees per acre with 93 tappable trees. The source of this seed was a TJ. 1 block on the same estate with an isolation of over 2 miles.

A number of sources of clonal seed has been approved on estates in Ceylon which have been planted with high yielding budded material. Seed from these gardens should come up to the standard of the best imported clonal seed. An initial high stand up to 250 trees per acre, and selective thinning on yield and secondary characters are obvious safeguards for ensuring high yields per acre with this planting material. The Rubber Research Scheme will, however, not be in a position to recommend this clonal seed for large scale planting until the early yields of trial areas have been carefully checked up against the better known budded material.

I have to acknowledge with thanks the co-operation of Estate Agents and Superintendents in sending the necessary yield data, which have been published in this article.

THE £ 50 CLEARING *

G. HUNTLEY—VINCIT ESTATE

THIS, like a certain pre-war garment, known far beyond the confines of Gloucester, is not for the exquisite. The Georgian Clearings, of £100 — guineas, have, like the ruffles, passed away and this article is an honest attempt to cut a utility suit.

All figures quoted are known figures based on my experience of opening a rubber clearing in a manufactured jungle in 1938, the full reports of which R. R. S. were good enough to publish in their journals dated

December 1941.
December 1946.

For each of these articles the R. R. S., naturally, declines any responsibility; they will for this, but I ask them to add to any value it may possess by comment on the important points.

Although I have catered for the prevailing fashion of making the cost of a clearing absolute, I contend that this is entirely wrong. The only way to compute its true cost is to combine it with the ancillary issues.

It is of course obvious that if one plants seed at stake in the clearings one saves the expense of a nursery. From the following figures quoted from the R. R. S. experiment of 1936, it becomes clear that budded stumps mature, about one year earlier and stumped buddings two years earlier than seed-at-stake planted September '36 and budded in the field 12 to 18 months later.

	Planted in field	Budded	Av. girth in inches 1942	Av. girth in inches 1943	Trees tapped
A. Seed at stake	Sept. '36	Sept. '37-Ap. '38.	15.29	17.87	Dec. 1943
B. Budded stumps	May, '36	—	19.74	21.93	Dec. 1942
C. Stumped buddings	May, '36	—	21.80	23.33	Mar. 1942

It therefore follows that, as against this one saving of a nursery and upkeep must be balanced the entire loss of crop, for one year in the case of B, and two years in the case of C. *plus* the saving in upkeep from poisoning deferred by these periods, if this method of eliminating the old stand is adopted.

The following table constitutes a rough guide to profit per annum but the more correct assessment would lie in the extra cost per lb. occasioned by the deduction of this lost crop.

	Smoked Sheet	Blanket Crepe	Sole Crepe
Cost of Production in cents per lb. say ...	47	52	59
Average sale price, say ...	49	64	89
Profit cts. per lb. = ...	2	12	30
Profit per acre per annum at 450 lbs. yield Rs.	9	54	135

* The Rubber Research Board welcomes papers on subjects of general interest from outside contributors, but does not accept any responsibility for the views expressed therein.

Comparing above with the extra costs of budded stumps and stumped buddings.

	Per stump Rs. cts.	Per acre Rs. cts.
Cost of budded stumps budded in nursery, *very* approx: per stump	... .20	36.00
If using nursery second time	... .10	18.00
Budding and material	... .10	18.00
Add transplanting, etc., and extra for holes 180 points per acre	... .25	45.00
Average total say	...	90.00
Cost of stumped buddings	... .40	72.00
Double cost of nursery as spacing is double	... .20	36.00
Budding and material	... .10	18.00
Add transplanting, etc. and extra for holes 180 points per acre	... .32	58.00
Average total say	...	130.00

Above are rough computations but based on actual nursery and budding costs.
The following conclusions are reached with surety.

				Rs.
1. Cost of clearing as per main table				650
2. True do. in 1 year	Rs.			
Budded stumps :—	650			
Add	90	740		
Deduct one year's upkeep ...		112	630	
Deduct one year's profit by tapping (average of 3 types manufacture)			66	570
or, for clonal stumps ...				550
deduct (— 18/-)				
3. TRUE Cost of do. in 2 year	Rs.			
Stumped buddings	650			
Add	130	780		
Deduct 2 years' upkeep ...		225	560	
Deduct 2 years' profit ...			132	430
or, for clonal stumps ...				410

The main table presumes maturity, for clonal seeds, in the 7th year, or, if tapped on March 1st — after 5 years and 7 months' growth.

This requires an annual girth increase (for maturity of 21" girth at 3' height), of 3.76 ins. per annum.

I live where it rains on 190 days and totals 148.72 inches and, as all my clearings (in budded stumps of 5 clones), have averaged 3 inches per annum to maturity, an extra ¾" per annum from the quicker growing seedling may logically be expected.

Thus far the ground is safe. The one great problem, however now presents itself, namely — MATERIAL.

In this essay it comes from one's own clonal seed, admittedly good modern clones, but with only the thin 5 chain crust between them and the Amazon!

"When the pie is opened"? Will there be a song?" — quite possibly! All ones books and a well-known Malayan Authority make the co-efficient of Variation, (V), e.g. the measure of dispersion round the mean

	%
for unselected seedlings	70
Clonal seedlings	40 and over
Budded stumps	20 - 30

Even if, therefore, the individual yields of a proportion of clonal seedlings be *equal* or better than those of its various parents, on the assumption that 180 of these are required per acre, one would require to plant a minimum of 288 or 108 extra holes for 4th year test tapping.

There comes the insidious whisper. The stronger grower is the better yielder — plant 2 per hole or even 4 and keep the most vigorous.

There are 36 chromosomes in Hev: Braz: can it be said with any degree of certainty that those representing general vigour are allied to that expressing lactiferous tissue, even loosely?

My scheme assumes this but I am fearful of it and would swerve to the safety of best known strains which, even at cents 25 per seed and say 250 points to the acre, would cost not more than Rs. 80 per acre extra, holing and all, plus, of course, the charge of finally uprooting 70 of them.

It seems little to pay, with so much reduced elsewhere, for an assured future; and so to the scheme:—

It is presupposed that the land to be treated has been regularly weeded. If not the 2nd year's labour for slashing and circle weeding must be transferred to the first.

It eschews all the refinements of removing Pueraria, planting Crot. Anag. Teph. Vog. and Gliricidia, and regularly mulching them into the soil, but it does allow for the continual forking in of whatever green material exists, mostly pueraria.

I am firmly convinced that the comparative failure of so many clearings, under proved clones, is NOT due to climate and very little to wrong siting of the clone, but, primarily, to two reasons, one — to having overlooked the basic agricultural principle that THE SOIL MUST BE REJUVENATED AS WELL AS THE RUBBER, and more especially, where it is baked, eroded and unaerated.

I know an area of moon-craters where, in an exceptionally weedy estate, no weed or grass or sheddy grew, only rubber of the apple orchard variety, yield of some 250 lbs. per acre but is now transformed to a grove of TJ. 1 returning 1,078 lbs. per acre in its 13th year.

The reason is 6' "Platforms: not because they did what their promoters promised, — they never have! — but because, from the sub-soil, an entire new earth was built by fork and air and cover.

There is no weeding or uprooting of cheddy, except where these interfere with the main crop, all extraneous species being allowed possession. These, of course, must be continuously slashed, more especially in the vital 2nd and 3rd years.

Here lies the second fertile source of failure, lack of individual treatment to young plants: few clearings will, ultimately, be firstrate UNLESS AT THE END OF THE SECOND YEAR, ALL PLANTS ARE EVEN.

VINCIT ESTATE—GENERAL ESTIMATE FOR OPENING CLEARINGS

DETAILED INFORMATION	1 Cooly operates	Units	Units per Acre	Item No.	WORK	Lab. Opening Year R. c.	Lab. 2nd Year R. c.	Lab. 3rd Year R. c.	Lab. 4th Year R. c.	Lab. 5th Year R. c.	Lab. 6th Year R. c.
						Cost per Acre per annum					
Two coolies for lining	200	Peg	180	1.	Supervision	10.00					
(1½' × 1½' × 1½') with alavangoe hole of 2'	20	Hole	180	2.	Lining	3					
With Lubarsan painted on decorticated panel				3.	Holing	9					
				4.	Poisoning	21.00					
Add Supervision	45	Hole	180	5.	Filling holes	4½					
Posts 12' apart Holing	30	Posts	15	6.	Fencing	7					
Cutting and fixing	30	Posts	15		and repairs		2	2			
Collecting bamboo and live jungle cuttings	30	Lin.ft.	180								
Opening Year :—Circle = 6' diameter once monthly, 4 months	1	Acre		7.	Circle weeding and Cover Control of plants	4	12	12	24	29	24
2nd and 3rd Years :—Circle = 8' diameter do	1	Acre									
4th Year :—Rentice = 6' broad do	½	Acre									
5th Year :—Uprooting cheddy growth and weed in intermediate rentice	1/5	Acre									
Plus weeding 1st rentice	½	Acre									
6th Year :—Weeding uprooting cheddy and Supplying cover throughout where necessary	½	Acre									
Opening Year :—1 slashing				8.	Cover Control	2	8	8	6		
2nd and 3rd Years :—4 slashings											
4th Year :—3 slashings Per slashing	½	Acre									
Upkeep and repairs, 1st year	5/6	Chain	2½	9.	Bridle roads	3	1	1	1	1	1
Subsequently	2½	Chain	2½								
4 Seedlings per hole planted direct				10A	Planting Cost per plant	½					
Collecting 36,000 seedlings	1,000	Seedlg.	720	B	Planting	2					
Transporting and planting	360	Seedlg.	720	C	Shading	2	2.00				
Shading											
Collecting 4 lbs. Crotolaria seed @ -/50 p. lb.											
Sowing same in fringes outside hole	90	Hole	180	D	Aftercare		1	1	1		
Rs.					CULTIVATION :—						
Points 180. Application ½ R/215 @283 per ton				11	Manure	7.90	17.70	23.60	29.80	35.40	41.40
½ Saphos @175 do											
Lbs. per acre as follows.											
Year R.215 Saphos Year R.215 Sapho											
Opening 97 45 4th 363 169											
2nd 218 101 5th 435 202											
3rd 290 135 6th 510 236											
Per application	2	Acre		12.	Field Transport	½	2	1½	1	½	½
1st Year 1 application				13.	Application	1	4	3	2	1	1
2nd Year 4 applications											
3rd Year 3 applications											
4th Year 2 applications											
Subsequently 1 application Per application	1	Acre									
Up to 5th year with each of above applications, except the opening year, forking only 5th and 6th years, forking only : Per round	½	Acre		14.	Forking and burying nitrogenous cover and soft leaves	2	16	12	8	7	7

VINCIT ESTATE—GENERAL ESTIMATE FOR OPENING CLEARINGS

Item No.	DETAILED INFORMATION	1 Cooly operates	Units	Units per Acre
17.	Tracks		1	Acre
	Dusting, per trip of 70 acres = 7 coolies			
	=420 lbs. sulphur @ -/22 = 92/40			
	Total 5 trips = 3½ bots. petrol and oil = 1/84			

Item No.	WORK	Cost per Acre per annum: Lab. Opening Year R. c.	Lab. 2nd Year R. c.	Lab. 3rd Year R. c.	Lab. 4th Year R. c.	Lab. 5th Year R. c.	Lab. 6th Year R. c.
15.	Pests	3	2	2	2	2	2
16.	Wind Damage	-	-	-	-	2	2
17.	Sulphur Dusting	-	-	-	-	1½ 6.80	1½ 6.80
18.	Contingencies	1.00	6.00	5.00	2.00	1.00	1.00
	Total No. coolies	43½	48	42½	45	44	39
	Cost of same	26.97	29.76	26.35	27.90	27.28	24.19
	do. D.A. of same	42.63	47.04	41.65	44.10	43.12	38.22
	do. D.A. of other items say	5.00	—	—	—	—	—
	do. Cost of other items	41.90	23.70	28.60	31.80	43.20	49.20
	Grand total cost per acre	116.50	100.50	96.60	103.80	113.60	111.60

GRAND TOTAL = Rs. 642.60

Check roll average -/62
D/Allowance „ -/98

This can only be achieved by continual sight and treatment of backward growth, and it has been my experience that even the most impossible runt can be straightened and matured by proper cultural treatment.

Manure follows entirely the R. R. S. recommendations but there is provision, under contingencies, for extra small doses and application in these initial two years.

Fencing is confined to local growths — why present barbed wire every full moon to villagers?

Draining.—No provision has been made under this head on the assumption that the old system of drain and pit remains and that erosion will be largely checked by the existing creeping cover. This has always been my experience: it would, of course, be preferable to set aside a small sum each year for clearing these, say 3 coolies, which would increase the total cost by Rs. 24.

It will be seen that the 5th year designs to remove the intermediate jungle.

It has been my experience that the artificial jungle which, at 1½ years from planting presented.

"A continuous wall 18' broad and from 6' — 13' high' began to give way to the advancing rubber shade about the 4th year and in the 5th year.

"Every lower tree bowl is visible from end to end of the plot" (5 acres).

The adventitious jungle will not give "nearly so much trouble:"

I have avoided final destruction by 1½% Sodium Aresenite which kills heavy scrub and weed in 4-5 days at 75% and less of the cost of ordinary removal for fear of destroying the leguminous cover.

As rubber, on the poorer soil devoted to Forestry methods showed practically no decrease in girth over that adjacent under normal planting there should be little loss by the method suggested above, for, forking and burying will probably equal the benefit of a 10 inches thick litter.

My conclusion to the forestry experiment was that the *creation* of a jungle showed no practical advantages over ordinary clearing: it by no means opposed "No burn" clearings with their incalculable benefit of retaining what nature has built over a thousand years.

This is a compromise, and, as it is based on firm trial of both costs and growth, it should, *given always correct material*, be entirely successful.

"The die is cast."

I cannot be the Imperial purple,

The ultimate it *must* not be.

ENERAL ESTIMATE FOR OPENING CLEARINGS

Units per Acre	Item No.	WORK	Cost per Acre per annum: Lab. Opening Year R. c.	Lab. 2nd Year R. c.	Lab. 3rd Year R. c.	Lab. 4th Year R. c.	Lab. 5th Year R. c.	Lab. 6th Year R. c.
	15.	Pests	3	2	2	2	2	2
	16.	Wind Damage	-	-	-	-	2	2
Acre	17.	Sulphur Dusting	-	-	-	-	1½ 6.80	1½ 6.80
	18.	Contingencies	1.00	6.00	5.00	2.00	1.00	1.00
		Total No. coolies	43½	48	42½	45	44	39
		Cost of same	26.97	29.76	26.35	27.90	27.28	24.19
		do. D.A. of same	42.63	47.04	41.65	44.10	43.12	38.22
		do. D.A. of other items say	5.00	—	—	—	—	—
		do. Cost of other items	41.90	23.70	28.60	31.80	43.20	49.20
		Grand total cost per acre	116.50	100.50	96.60	103.80	113.60	111.63

GRAND TOTAL = Rs. 642.60

Check roll average -/62
D/Allowance „ -/98

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NOTES BY THE RUBBER RESEARCH SCHEME

THE point of costs which arises between the planting of budded stumps and stumped buddings has been commented on by us on several occasions in recent years in reply to inquiries on the feasibility of planting on a large scale with stumped buddings in preference to budded stumps.

From our experience of the raising and planting of stumped buddings in our 1936 Experiment at Dartonfield, we are of the opinion that in the long run under present labour conditions the extra cost of handling the heavier stumped buddings will write off the cost of the extra crop obtained from this form of planting material during the early tapping years compared with budded stumps.

While we are in agreement with the author's costing of budded stumps and stumped buddings at 20 and 40 cents each respectively, the costs of transport and transplanting will differ to a greater extent than 25 and 32 cents respectively for the two forms of planting material for the following reasons:—

(A) A man can comfortably transport 20 to 25 budded stumps, but not more than 4 to 5 two year old stumped buddings. (In the Dartonfield experiment well grown 2 year old stumped buddings were used, stumped at 6 to 8 feet, with an average girth of about 4½ inches at 3 feet from union). The difference in cost will be accentuated under this head according to the distance of the nursery from clearing. These remarks will apply equally well to any other form of transport.

(B) The cost of uprooting a stumped budding in the nursery with a 4 year old tap-root as against the budded stump with a 2 year old tap-root.

(C) Time taken for planting a stumped budding against a budded stump — Holes have to be adjusted invariably to hold the bigger root system of stumped buddings while 4 to 5 budded stumps can be planted at the same time.

It is not generally recognised that apart from the set back given to both forms of planting material in the process of transplanting, the stumping of a budgraft for planting as a stumped budding at 2 years of age gives a considerable set-back to the physiological activities of the stump during the first 18 months of growth. The 2 year old stem is supported by a very limited crown and in clearings facing west many of these stumped buddings succumb to sunscorch of main stem during the first 2 years of growth.

Although we have no reliable costings of the planting and transport of stumped buddings on a large scale, it is suggested that the relative costs under these heads will be more than double compared with the handling of budded stumps.

Growth measurements and approximate yield figures for the Dartonfield experiment are given under:—

1936 Replanted Area, Dartonfield

Average Girth Measurements in Inches

Period	Stumped buddings Planted May 1936	Budded Stumps Planted May 1936	Field buddings Budded in Field Sept. '37-Apl. '38
June 1938	8.55	6.21	—
„ 1939	11.84	9.19	4.89
„ 1940	15.33	12.77	7.91
„ 1941	19.04	16.56	11 65
„ 1942	21.80	19.74	15.29
„ 1943	23.33	21.93	17.87
„ 1944	25.26	23.72	20.39
„ 1945	26.53	25.39	22.22
„ 1946	28.29	27.33	24.21
„ 1947	29.74	29.22	26.13
„ 1948	30.67	30.16	27.12

Approximate Yield in lbs per Acre based on one sample tapping per month

Year	Stumped Buddings	Budded Stumps	Field Buddings
1942	397 (92)	*27 (90)	
1943	497 (91)	406 (92)	*26 (77)
1944	679 (92)	543 (94)	375 (77)
1945	642	584	388
1946	790	728	549
1947	842	797	601
1948	996	944	752
Total 1942-48	4843	4029	2691
Excess	+2152	+1338	—
„	+814	—	—

* Tapped in December of the year only.

Figures in brackets indicate number of trees on which the yields per acre were calculated during the first 3 years of tapping.

It will be noted that there is a considerable levelling up of girth in the trees planted as stumped buddings and budded stumps by the time the trees come into maturity. Under these circumstances it is reasonable to expect the yields between the two forms of planting material to even up.

The yield figure shows an apparent accumulated excess in yield of about 800 lbs. in favour of stumped buddings over a period of 7 years tapping, but the error of the experiment is somewhat high and since 1945 the increased yields of stumped buddings over budded stumps cannot

be confirmed by a statistical analysis. In fact there is little evidence to show that the increased yields from stumped buddings really exist beyond the third year of tapping in this experiment.

While we are not in favour of planting out on a large scale with stumped buddings, we consider this form of planting material as ideal for late supplies especially after a clearing has passed its second year of growth and also for planting in low lying areas subject to flooding at certain periods of the year.

Reference is made to 36 chromosomes of Hevea Braziliensis, and although a discussion on this subject is beyond the scope of these notes, the number of 36 is considered to be correct. The chromosome is however not the ultimate genetic element which determines the nature of the development processes, which result in the characteristics of a particular seedling plant. Each chromosome is made up of a great number of separable genetic elements called genes, which contribute to the variability of the offspring. The good growers among clonal seed need not necessarily be the best yielders, but in the process of thinning an initial high stand, it will be necessary to consider spacing and yield together in deciding which trees to eliminate. It will not be possible to remove all low yielders and also keep a sufficiently even stand in a large plantation of clonal seedlings. The method of thinning out is discussed in our Advisory Circular No. 19. We recommend from 200-250 points per acre when planting clonal seedlings depending on the "type" of clonal seed used.

Elsewhere in this quarterly circular publication, notes are given on the choice of reliable clonal seed under the caption "Collection and Planting of Clonal Seed."

C. A. de S.

RUBBER PRODUCTION ON SMALLHOLDINGS

By W. I. PIERIS.

1. Although the Rubber Market has seriously depreciated of late and thereby affected all types of rubber producers (present Colombo price for Grade 1 smoked sheet varying from 45-48 cents per pound), it is worthy of note that the class of producer least affected is the smallholder.

2. Smallholders, by reason of their low cost of production, can still produce sheet at a fair profit, provided certain fundamental requirements are observed.

3. The quality of sheet produced must not be so inferior as to fetch below 2 cents per pound less than the top price paid for Grade 1 sheet at the local Government Depot. Preferably it should fetch More. (Much smallholders' sheet is fetching as little as 5-8 cents per pound less than top price from local dealers).

4. Sheet should be sold to the nearest Govt. Purchasing Depot. Special arrangements have been made with the Rubber Commissioner to pay the highest price possible for smallholders' sheet according to quality, and every consideration will be given by Depot Officers. Where a smallholder is convinced that a fair price has not been paid at a Depot, he should communicate with the nearest Rubber Instructor or District Field Officer of the Rubber Research Scheme, who will intercede with the Depot Officer on his behalf.

   Rubber Instructors are stationed at Agalawatta, Matugama, Horana, Padukka, Kesbewa, Talangama, Dompe, Gampaha, Akuressa, Kamburupitiya, Hinidumal Talpe, Talgaswela, Pitigala, Meegahatenna, Nivitigala, Pelmadulla, Kuruwita, Ehaliyagoda, Dehiowita, Kosgama, Ruwanwella, Ingiriya, Pasyala, Nelundeniya, Warakapola, Undugoda, Kegalla, Mawanella, Rambukkana and Galagedera.

   District Field Officers .... at Horana, Baddegama, Ratnapura and Kegalla.

5. Where Govt. Depots are not available at close proximity, smallholders will find it worth while to transport their sheet, individually, or co-operatively with 2 or 3 others, by cart or lorry, to the nearest Depot available. The better prices received will more than compensate for the transport costs.

6. Sheet should be uniform in grade when taken for sale, as mixed grades result in good sheet being penalised on account of bad ones. Rubber Instructors will give free practical demonstrations and instructions in sheet making, rolling and smoking.

7. Sheet making technique is briefly summarised below for the benefit of those who read this leaflet.

   (a) Gently empty latex brought from the field in buckets into another receptacle so that the sand and heavy dirt remain behind in bucket.

   (b) Dilute the latex with an equal quantity of water *before* straining.

(c) Strain latex-water mixture *through a sieve of 40 or finer mesh.* Mesh can be purchased from Rubber Instructors at special concession rates. On no account use straw, ferns, etc. for straining.

(d) Pour the strained latex-water mixture into coagulating pans *@ 1 gallon per each pan* (6 bottles or 8 pints make 1 gallon).

(e) *Add 3 fluid ozs.* of *5% Acetic Acid* to each pan and mix thoroughly. Consult Rubber Instructors if you don't know how to measure a correct ounce. To obtain *5% Acetic Acid*, add 19 parts water to 1 part pure Acetic Acid (98% imported) bought from Govt. Rubber Purchasing Depots. This diluted acetic acid (5%) should be kept in clean, corked bottles for daily use. Always buy acid from a reliable source.

If D.C.I. Acetic Acid, which is also available for sale at Govt. Depots, is used, always ascertain its strength when buying. It is available in 2 strengths — 80% and 40%. To make a 5% solution from these, add 15 parts water to 1 part acid to the 80% variety and 7 parts water to 1 part acid to the 40% variety. When a 5% solution is obtained by diluting in this way, add 3 ozs. diluted acid to each pan as before for coagulating the gallon of latex-water mixture in it.

(f) During coagulation *keep pans covered* with light lunumidella boards suitably joined together or by some other form of covering. This is important as dirt is invariably found to get into smallholders' sheet at this stage.

(g) If the 3 ozs. of 5% Acetic acid to each pan was added by noon today, the latex would have coagulated by tomorrow morning for rolling. If, however, it is required to roll the same evening, 5 ozs. of 5% Acetic acid must be added to each pan instead of 3 ozs.

(h) Take the white coagulum out of the pan, place on a clean board or table, and knead with fingers to suitable thinness to pass through smooth roller. Pass through smooth roller 3 times, making the spaces between pair of rollers smaller each time, so that coagulum comes out about 1/8 inch thick the last time. Then pass through grooved roller once. A standard sheet should be 22 × 17 inches in size and approximately 1¼ lb. in weight when dry.

(i) Wash well in clean water during and after rolling, hang out under cover (*not* in the sun) for *not more than 2 hours* for excess water to drip, and put into smokehouse. It is definitely unwise to hang out sheet, after rolling, for more than 2 hours owing to risk of "rust."

(j) Temperature of smokehouse should be 110-120°F. Rubber Instructors will test temperature on request. Turn each sheet completely over at the end of the first 12 hours and again after the next 12 hours. Thereafter merely shift position of sheet on reeper an inch or so both morning and evening to avoid reeper marks.

Sheet will be completely dry in 5-6 days.

(k) Smokehouses must be simply but properly constructed on Rubber Instructors' advice. Free plans of specially-designed

cheap smokehouses and advice will be supplied. Existing houses can be improved without much cost or trouble with Rubber Instructors' advice.

If the above simple procedure is carefully followed, every smallholder can produce sheet of Grade 1 quality.

8. A smallholder, even when employing a paid tapper, can produce a pound of dry rubber today at 30-35 cents, thus making a profit of 10-15 cents per pound on present market rates, provided he makes good quality sheet and gets a fair price for it.* If a free member of his family does the tapping, his profit will be in the neighbourhood of 40 cents per pound. In this respect he is far better off than the large estate owner who is unable to produce a pound of rubber today under 45-50 cents.

	Cost per pound
(a) Tapper—at 25 to 30 cents per pound of dry rubber brought in (which is the prevailing contract rate paid in villages)	25-30 cents
(b) Acid—@ Rs. 1-40 a bottle (imported Acetic) as sold at Rubber Commissioner's Depots.	1 cent or less
(c) Rolling and Smoking	4 cents
Total	30-35 cents

9. A further aid towards economic sheet production is the formation of Rubber Co-operative Societies among groups of smallholders. A society of this kind has been established at Hataraliadde and is functioning with great benefit to its members. Each member's latex is brought to a central factory, measured up, bulked, and made into Grade 1 sheet by the Society's paid Rubber Maker who was trained by this Department. Similar societies could be opened elsewhere. Prospective members should be within a 1-2 mile radius of the central factory owing to the difficulty of transporting latex. Particulars can be obtained from Rubber Instructors.

10. The time has come when smallholders must definitely decide to give up their slack, complacent methods of rubber production and exercise every endeavour to eke out a living from their Rubber. Fortunately this is still possible, and it is hoped that the foregoing notes will be of some help. The officers of the Smallholdings Department of the Rubber Research Scheme will always be ready to render every assistance possible.

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* It cannot be too strongly emphasised that the sum of 30-35 cents represents only the immediate cash outlay necessary on the part of a smallholder to produce smoked sheet from trees and with equipment already owned by him. It does not represent the true cost of production, which is almost certainly much higher than the estate costs of 45-50 cents.

— Director, R.R.S.

COLLECTION AND PLANTING OF CLONAL SEED

IN recent years a number of budded areas on estates in Ceylon has been approved as sources of clonal seed. It is considered necessary at the present stage to issue notes on the correct methods of collecting seed, which will conform to the constituent clones in the seed gardens. Apart from observing the limits of isolation laid down for obtaining reliable seed, which will be the result of crossing between the approved clones a number of other precautions is necessary. A quantity of selfed seed will also be available depending on the size of monoclonal blocks approved.

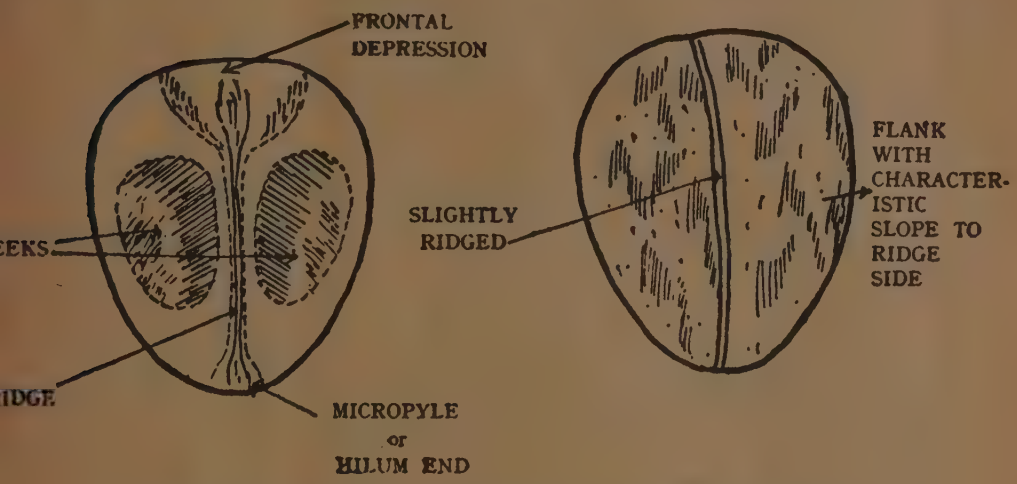
An estate offering irresponsible collections of clonal seed will be guilty of a dis-service to this country. The results from such collections, apart from bringing the sources of such seed into disrepute in the future will give an erroneous impression of the potentialities of clonal seed in general.

All estates undertaking to supply clonal seed must, therefore, ensure that trees in clonal seed areas are authentic budgrafts of the clones approved. Trees which are suspect of being developed from stock shoots must be uprooted or 'crown-budded.' If such interlopers in budded areas are overlooked the quality of the clonal seed collected will deteriorate to a considerable extent due to undesirable crosses that are bound to occur.

Although the male parent cannot be established with any certainty, it is always possible to make sure of the clone mother parent by the characteristic shape and markings of the seed, which remain the same within a clone. The seed coat is solely dependent on the character of the mother tree and independent of the male cross. According to conditions of growth of clones differences in the size of seed within a clone may present some preliminary difficulties in identification work, but with a little practice this difficulty is soon overcome.

For example the seed from a garden with 4 clones can be separated into 4 distinct seed groups representing the 4 clones. It has been our experience that with a little practice Conductors, intelligent labourers, and even children can be entrusted with the work of identification of a collection of clonal seed according to clone mother parents. This work is greatly facilitated, if collections are made on sections of the estate without a general mix up of several areas with a number of different clones. All other seed not conforming to one or other of the clone parents must be discarded for purposes of sale as clonal seed.

A few seed characters which are useful in identification work apart from markings are given in diagrams A and B.



Each estate can have its own collection of type seed by gathering a few pods directly from correctly identified trees of the various clones in the seed garden. Seeds from clone parents are familiar to us, and we can easily identify sample seed sent to us and return it to be kept on estates as type seed. In most cases this will not be necessary if seed is collected directly from clones, which are known to be true to type.

A plan of the layout of a replanted area approved as a source of clonal seed is also appended indicating the various kinds of seeds that may be collected.

It should be noted that no clonal seed can be collected from clonal seedling areas, block 6 in plan; such seed is second generation seed and must be considered unreliable, as crosses will take place between the best and worst of parents in the genetically variable population of a seedling area.

SEED GROUP FROM MOTHER PARENT	PROBABLE MALE PARENT
1. TJ. 1	MK. 3/2, PB. 86, TJ. 16
2. TJ. 16	TJ. 1, PB. 86
3. MK. 3/2	TJ. 1, PB. 86, GL. 1
4. PB. 86	TJ. 1, TJ. 16, MK. 3/2
5. GL. 1	GL. 1, MK. 3/2, PB. 86.

With regard to most clones 'selfing' is rather the exception than the rule. Clones TJ. 1 and PB. 86 are more self-fertile than most clones, and a fair quantity of 'selfed' seed of these clones can be obtained collecting centrally from blocks of about 50 acres and over. In general the biggest quantities of seed will be found along the lines of contact.

No attempt is made to classify the foregoing seed as good, or poor. Our recommendations for planting clonal seed at present are limited to small scale trials. (See Advisory Circular No. 20 Revised May 1944). These trials are for purposes of checking up the performance of clonal seed available in this country against the better known budded rubber. In the meantime mixed clonal seed can be expected to give satisfactory results compared with clones (budded rubber), if planted according to our recommendations. (See Advisory Circular No. 19). A stand of well over 200 points per acre depending on the 'type' of clonal seed, with selective thinning on yield, growth and secondary characters, is the obvious safeguard against poor results.

Mixed seed of the better known clone parents planted preferably according to clone mother parents is a sound policy, and should be adopted in preference to seed of any single clone parent. So far only selfed seed of clone TJ. 1 has done well, and little is known of the selfed seed of other clones, except perhaps that of clone BD. 5 which in recent years has given satisfactory results in Malaya.

Estates with approved sources of clonal seed will be well advised to plant a small acreage of their own clonal seed, sorted into seed groups representing the clone mother parents. Yield results from these plantings will help a particular source of clonal seed to establish a reputation for itself for the future on actual results. Many clones hitherto not 'proved' as seed parents have been approved with the hope that these small trial plantings will establish their potentialities in due course.

The Rubber Research Scheme can only test out a very limited quantity of clonal seed available in this country. In the meantime there is every reason to hope that locally available material will be comparable in value with the better known clonal seeds planted on a large scale in other countries. Prang Besar seed from the Isolated Seed Gardens in Malaya has already established an useful reputation for itself in this country and can now be planted on a larger scale than hitherto.

Many difficulties can be overcome by putting out suitable clonal seed in nurseries for planting out as stumped seedlings after 18 to 24 months growth. This system has many advantages. Planting directly in the field entails initial losses of valuable clonal seed for want of the care and attention possible in nurseries. A certain amount of preliminary selection is also possible while the seedlings are growing in a nursery.

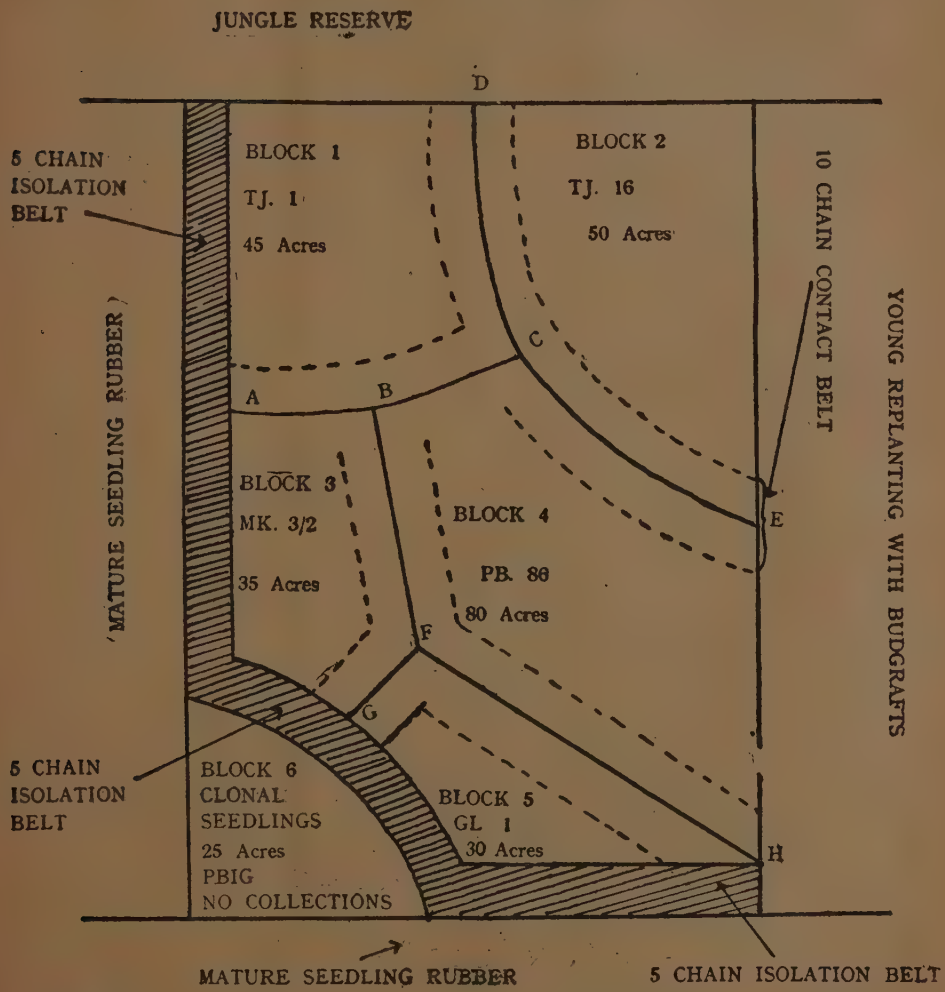
Large scale planting of clonal seed can be undertaken at short notice provided that reliable clonal seedlings of known clone parents have been carefully established in nurseries on the lines indicated in the notes given earlier. Mistakes with clonal seedlings can be discovered only when the seedlings are tapped, while in budgrafts mistakes can be rectified by identification in the field at an early stage.

From our limited knowledge of the yielding capacity of various seedling families in Ceylon and elsewhere, the following clones can be regarded as good seed parents, and should be given preference to other clones, which have been generally approved in Ceylon :—

Clones TJ. 1, BR. 2, PB. 23, BD. 5, TJ. '16, AV. 33, AV. 163, PIL.A. 44, PR. 107, LUN.N., GL. 1, PIL.B. 84, BD. 10, PB. 86, AV. 157, AV. 152, MK. 3/2, WG. 6278, BS. 3, RRIM. 504, LCB. 1320, PB. 25, PB. 186, AV. 49, HC. 28, BD. 2.

Self seed of clones TJ. 1 and BD. 5.

PLAN SHOWING KINDS OF SEEDS THAT MIGHT BE COLLECTED



BOUNDARY	CROSS
AB	TJ. 1 x MK. 3/2
BC	TJ. 1 x PB. 86
CD	TJ. 1 x TJ. 16
CE	TJ. 16 x PB. 86

BOUNDARY	CROSS
BF	PB. 86 x MK. 3/2
FH	PB. 86 x GL. 1
FG	MK. 3/2 x GL. 1

MEETINGS

RUBBER RESEARCH SCHEME (CEYLON)

Minutes of the eighty-sixth meeting of the Rubber Research Board held at the Ceylon Chamber of Commerce, Colombo, at 10 a.m. on Monday, 15th December, 1947.

Present.—Mr. D. Rhind (in the Chair), Mr. H. E. Peries, C.C.S. (Representing the Deputy Secretary to the Treasury), Mr. Simon Abeywickrema, M.P., Mr. W. H. Attfield, Mr. W. Neal de Alwis, J.P., Mr. C. A. C. Bowen, Mr. W. P. H. Dias, J.P., Mr. A. M. Clement Dias, Mr. Noel de Silva, Mr. T. C. A. de Soysa, Mr. F. H. Griffith, M.P., Mr. R. C. L. Notley, Mr. F. A. Obeyesekere and Col. J. T. Young.

Dr. E. Rhodes, Director, was present by invitation.

The Chairman read an apology for absence from Mr. R. J. Hartley.

1. Minutes

Draft minutes of the meeting held on 3rd November, 1947, which had been circulated to members, were signed by the Chairman.

Messrs. Neal de Alwis and Simon Abeywickrema came into the meeting.

2. Board

(a) The Chairman reported that Mr. C. A. C. Bowen, representing the R. G. A., had resumed membership with effect from 27th November, 1947, relieving Mr. A. D. Layton who had acted for him.

(b) The Chairman spoke of the services rendered to the Board by his predecessor, Mr. L. J. Seneviratne, who had served as Chairman from 14th February, 1944 until 20th October, 1947. A unanimous vote of thanks was passed by the Board for the valuable services which he had rendered.

3. Finance

(a) *Report of Finance Committee.*—The Committee's report was adopted subject to the amendment that the increased cess to be asked for should be 50 cents per 100 lbs. instead of 33 1/3 cents. Agreed that the support of the Planters' Association of Ceylon and the Low Country Products Association be sought and the report then presented to the Hon'ble the Minister of Agriculture and Lands by a deputation consisting of five members of the Board, the Chairman and the Director.

(b) *Contribution to London Advisory Committee* — Agreed that the contribution for 1948 should be £2,000.

4. Reports

(a) *Director's report for the 3rd quarter 1947* — was approved.

(b) *Inventory Report for 1946* — was approved.

(c) *Comments on Report of the Rubber Commission* — Draft comments prepared by the Director were approved for transmission to the Minister.

5. Staff

(a) *Re-engagements* — Agreed that Mr. C. A. de Silva, Botanist, Mr. W. I. Pieris, Smallholdings Propaganda Officer, and Dr. L. A. Whelan, Soil Chemist, be offered re-engagement on the termination of their contracts.

(b) *Chemist* — Appreciation of the very valuable services rendered to the Scheme by Mr. M. W. Philpott, Chemist, who had resigned to accept a post in Malaya, was recorded.

(c) *Junior Staff*.—Changes in staff were reported.

6. Statement of Receipts & Payments for the 2nd Quarter 1947

was approved.

The meeting then terminated.

C. D. de FONSEKA,
Secretary-Accountant.

RUBBER RESEARCH SCHEME (CEYLON)

Minutes of the 87th meeting of the Rubber Research Board held at the Planters' Association Building, Colombo, at 2-30 p.m. on Monday, 26th April, 1948.

Present.—Mr. D. Rhind, Director of Agriculture (in the Chair), Mr. H. E. Perles, C.C.S. (Deputy Secretary to the Treasury), Mr. Simon Abeywickrema, M.P., Mr. C. A. C. Bowen, Mr. W. P. H. Dias, J.P., Mr. T. C. A. de Soysa, Mr. E. Jayewickrema, Mr. F. A. Obeyesekere, and Mr. E. J. O Richardson.

Dr. E. Rhodes, Director, was present by invitation.

Apologies for absence were received from Messrs. F. H. Griffith, M.P., R. J. Hartley and A. D. Layton.

1. Minutes

(a) *Minutes of last meeting* — Draft minutes of the meeting held on 15th December, 1947, which had been circulated to members, were signed on signification of members' assent that they were in order.

(b) *Report of Finance Committee* — Reported that the report had been presented to the Minister for Agriculture and Lands and that a deputation consisting of the Chairman, the Director and five members of the Board had waited on the Minister.

2. Decisions by Circulation of Papers

Sale of an Investment — Reported that members had agreed to the sale of Rs. 190,000 stock of Ceylon Government 3½% Loan 1949/51.

3. Board

(a) *Mr. L. J. Seneviratne* — A letter of thanks from Mr. L. J. Seneviratne, late Chairman, was read.

(b) *Membership* — The following changes in membership were reported :—

1. Mr. H. E. Perles, C.C.S., Acting Deputy Secretary to the Treasury, had been nominated to represent the Minister of Finance in place of Mr. T. D. Perera during the latter's absence from Ceylon, with effect from 20th March, 1948.

2. Mr. E. J. O. Richardson had been nominated to represent the C. E. P. A., with effect from 1st January 1948 in place of Col. J. T. Young who had resigned.

3. Mr. Errol A. Jayewickrema had been nominated as a representative of the L. C. P. A., with effect from 25th February 1948 in place of Mr. W. Neal de Alwis whose period of membership had expired.

4. Mr. A. D. Layton had been nominated by the P. A. of Ceylon to act for Mr. R. C. L. Notley during the latter's absence from Ceylon with effect from 16th April, 1948.

The new members were welcomed to the Board and the retiring members thanked for their services.

4. Experimental Committee

(a) *Membership* — Agreed that Mr. E. Jayewickrema should serve on the Committee in place of Mr. R. C. L. Notley during the latter's absence from Ceylon.

(b) *Recommendations made at meeting held on 12th April, 1948* :—

1. *Ceylon Estates Employers' Federation* — The recommendation that membership of the Ceylon Estates Employers' Federation be sought was approved.

2. *Visiting Engineer's Report* —
Water pumps — The recommendation that two new pumps be purchased to replace existing ones was approved.

3. *New National Engine and Generator* — A supplementary vote of Rs. 12,716 was passed to cover the increased cost of the new engine and generator.

4. *Multiplication of special Prang Besar clones* — Agreed that the temporary arrangement for multiplication of certain promising P.B. clones should not be continued but the local agents of the Prang Besar Co should be given time to establish the material in their own nurseries.

5. *Charges for supply of electric current to bungalows* — A new scale of charges for electricity supplied to bungalows, based on the salaries of the occupants, was approved.

6. *Hedigalla cart road* — As recommended by the Committee, a vote of Rs. 8,000 was passed for construction of the 5th half mile of road and it was also agreed that the next half mile be constructed on estate account.

The minutes were then adopted.

5. Reports and Accounts

(a) *Annual Report for 1947* — Members complimented the Director on the report which showed that good work had been done which would be of benefit to the industry particularly in regard to *Oidium* leaf disease. The report was adopted.

(b) *Director's report for the 4th quarter 1947* — was adopted.

(c) *Statements of Receipts and Payments for the 3rd and 4th quarters 1947* — were approved.

(d) *Estate accounts July to December 1947* — were tabled.

(e) *Re-vote of 1946 capital votes* — Balances of 1946 capital votes amounting to Rs. 86,032 were re-voted.

(f) *Travelling expenses on taking up first appointment* — Agreed that officers' travelling expenses on taking up first appointment should be paid in accordance with the terms of the relative Financial Regulations.

6. Staff

(a) *Mr. T. E. H. O'Brien (late Director)* — Agreed that the Minister be again approached for his consent for amendment of the Ordinance to enable the payment to Mr. O'Brien of a pension as approved earlier.

(b) *Chemist* — A letter from Mr. M. W. Philpott thanking the Board for the references made regarding his work during his period of service with the Scheme was read.

(c) *Mycologist* — The departure of Mr. C. G. Hansford, Mycologist, on 14th January was reported.

Mr. de Soysa and Mr. Richardson left the meeting.

(d) *Botanist* — Reported that Mr. C. A. de Silva, Botanist. had accepted re-engagement for a further period of 4 years and 3 months.

Consideration of the other items on the agenda was postponed.

C. D. de FONSEKA,
Secretary-Accountant.

RUBBER RESEARCH SCHEME (CEYLON)

Minutes of the 88th meeting of the Rubber Research Board held at the Planters' Association Building, Colombo, at 2-30 p.m. on Monday, 31st May, 1948.

Present.—Mr. W. P. H. Dias, J.P., (in the Chair) Mr. C. A. C. Bowen, Mr. Noel de Silva, Mr. E. R. de Silva, Mr. R. J. Hartley, Mr. Errol A. Jayawickreme, Mr. A. D. Layton, and Mr. E. J. O. Richardson.

Dr. E. Rhodes, Director, was present by invitation.

An apology for absence was received from Mr. F. H. Griffith, M.P.

It was reported that Mr. D. Rhind, Chairman, was unable to attend the meeting owing to illness. Mr. Hartley then proposed and Mr. Bowen seconded that Mr. W. P. H. Dias should take the chair. Agreed.

1. Minutes

Draft minutes of the meeting held on 26th April, 1948, which had been circulated to members, were signed by the Chairman subject to amendment of item 4(a) to read as follows :—

> Mr. Jayawickrema proposed and Mr. Abeywickrema seconded that Mr. T. C. A. de Soysa should act for Mr. R. C. L. Notley on the Experimental Committee during the latter's absence from Ceylon.

2. Board

(a) *The late Mr. Simon Abeywickreme, M.P.*—The Chairman referred to the death of Mr. Simon Abeywickreme who had been a useful and active member of the Board since March, 1946. A vote of condolence was passed in the usual manner.

(b) The following changes in membership were reported:—

1. Mr. R. Bois had been nominated by the Agency Section of the Planters' Association of Ceylon to act for Mr. W. H. Attfield during the latter's absence from Ceylon with effect from 28th May, 1948.
2. Mr. E. R. de Silva had been nominated as a representative of the Low Country Products Association of Ceylon with effect from 21st May, 1948, in place of Mr. A. M. Clement Dias whose period of membership had terminated.
3. Mr. W. P. H. Dias, JP., had been re-nominated as a representative of smallholders for a further period of three years from 10th June, 1948.

The new members were welcomed to the Board and the retiring members were thanked for their services.

3. Staff

Changes in junior staff were reported.

4. Vulcanising Equipment

Agreed that certain items of vulcanising and testing equipment which are now not required by the Scheme be sold to the Department of Industries and the Rubber Research Institute of Malaya.

5. Medical Fund

Alteration of Rule No. 12 of the Junior Staff Medical Fund to provide for the case of officers promoted to the senior staff was approved.

6. Publications

The following publications were tabled:—

Annual Report for 1946.

Combined 3rd and 4th Quarterly Circulars for 1947.

Referring to the Quarterly Circular, Mr. Hartley congratulated the Director on the production of a first class publication which contained valuable information on replanting, etc. in non-technical language.

7. London Advisory Committee for Rubber Research (Ceylon & Malaya)

Minutes of meetings of the Committee and the Technical Sub-Committee held on 7th November, 1947 and 5th March, 1948 were tabled.

8. Graduate Research Assistants

Agreed that the salary scale of Graduate Research Assistants be brought into line with the Government scale.

9. Meetings

Agreed that one meeting per year be held at Dartonfield.

The meeting terminated with a vote of thanks to the Chair.

C. D. de FONSEKA,
Secretary-Accountant.

RUBBER RESEARCH SCHEME (CEYLON)

Minutes of the 89th meeting of the Rubber Research Board held at the Planters' Association Building, Colombo, at 2-30 p.m. on Monday, 25th October, 1948.

Present.—Mr. D. Rhind (Director of Agriculture) in the Chair, Mr. H. E. Peries, C.C.S. (Acting Deputy Secretary to the Treasury), Mr. W. H Attfield, Mr. H. St. J. Cole Bowen, Mr. C. A. C. Bowen, Mr. Noel de Silva, Mr. E. R. de Silva, Mr. W. P. H. Dias, J.P., Mr. T. C. A. de Soysa, Mr. F. H. Griffith, M.P., Mr. R. J. Hartley, Mr. Errol A. Jayewickrema, Mr. A. D. Layton, Mr. V. T. Nanayakkara, M.P., and Mr. F. A. Obeyesekere.

Dr. E. Rhodes, Director, was present by invitation.

A letter regretting inability to be present was received from Mr. V. G. W. Ratnayake, M.P.

1. Minutes

Draft minutes of the meeting held on 31st May, 1948, which had been circulated to members, were signed by the Chairman on signification of members' assent that they were in order.

2. Decisions by Circulation of Papers

Renting out 2 Staff Bungalows at Dartonfield

Reported that the proposal to rent out senior staff bungalows No. 1 and 3 to the M.O.H. Agalawatta and M.O.H. Matugama respectively had received the approval of members. The bungalows had therefore been rented out.

3. Board

The Chairman reported the following changes in membership :—

(a) Mr. H. E. Peries, C.C.S., Acting Deputy Secretary to the Treasury, had been nominated to represent the Minister of Finance in place of Mr. T. D. Perera, C.C.S., with effect from 21st August, 1948.

(b) Major Montague Jayewickreme, M.P. had been nominated as a representative of Parliament with effect from 8th June, 1948, in place of Mr. George E. de Silva whose membership had terminated.

(c) Mr. V. T. Nanayakkara, M.P., had been nominated as a representative of Parliament with effect from 9th June, 1948, in place of the late Mr. Simon Abeywickreme.

(d) Mr. V. G. W. Ratnayake, M.P., had been nominated as a representative of Parliament with effect from 25th June, 1948, in place of Mr. Thomas Amarasuriya whose membership had terminated.

(e) Mr. W. H. Attfield had returned to the Island and resumed his seat with effect from 6th August, 1948, relieving Mr. R. Bois.

(f) Mr. F. H. Griffith, M.P., had been re-nominated as a representative of the Planters' Association of Ceylon for a further period of three years from 16th November, 1948.

(g) Mr. H. St. J. Cole Bowen had been nominated as a representative of the Agency Section of the Planters' Association of Ceylon, with effect from 22nd October 1948 in place of Mr. E. J. O. Richardson who had resigned.

(h) Mr. F. A. Obeyesekere had been re-nominated as a representative of smallholders for a further period of three years from 26th November, 1948.

The new members were welcomed to the Board and the retiring members were thanked for their services.

4. Smallholdings Committee

Recommendations made at Meeting held on 17th September 1948

New Rubber Planting Scheme.—Reported that the activities of the New Rubber Planting Scheme had been taken over with effect from 1st October 1948 and that a special grant for this work would be received annually from Government. 2 Asst. Propaganda Officers, 2 District Field Officers, 24 Rubber Instructors, 2 Clerks and 1 Peon had been appointed from the staff of the N. R. P. S. Their appointments were approved and the Director's proposals for administering the enlarged Smallholdings Department were also approved.

The minutes were adopted.

5. Experimental Committee

Recommendations made at Meeting held on 24th September 1948

Research programmes for 1949 — were approved.

The minutes were adopted.

6. Reports and Accounts

(a) *Director's reports for 1st and 2nd quarters 1948* — were approved.

(b) *Draft estimates for 1949.*—Draft estimates for 1949 providing for income and expenditure as follows were approved and it was noted that the financial position was generally better than anticipated last year:—

Estimated income		Rs. 583,353
Estimated expenditure:—		
On Revenue Account	Rs. 627,470	
On Capital Account	„ 67.972	„ 695,442
Estimated excess of expenditure over income:		Rs. 112,089

(c) *Statements of Receipts and Payments for the 1st and 2nd quarters 1948* — were approved.

(d) *Fixed Deposit.*—The Chairman reported that a sum of Rs. 100.000 had been placed on fixed deposit with the Bank of Ceylon, Colombo, for one year from 8th October 1948 at 2% interest per annum. Approved.

(e) *Estate accounts January to June 1948* — Dartonfield, Nivitigalakele and Hedigalla accounts January to June 1948 were tabled.

7. Staff

(a) *Smallholdings Propaganda Officer* — The Chairman reported that Mr. W. I. Pieris, Smallholdings Propaganda Officer, had accepted re-engagement for a further period of 4 years and 3 months from 1st April 1948 on the terms laid down for locally recruited senior technical officers.

Mr. Obeyesekere left the meeting.

(b) *Recruitment of Oidium Research Officer.*—A request from the Permanent Secretary to the Minister of Agriculture and Lands that steps be taken to appoint an Oidium Research Officer was considered. Certain members stressed the importance and value of an appointment of this nature and it was agreed after discussion that an advertisement be issued in scientific journals in Europe, America, Australia and South Africa for a Mycologist for full-time work on Oidium Heveae. It was agreed that the initial salary should be a point in the scale Rs. 12,000 — Rs. 600 — Rs. 25,800 according to qualifications and experience.

(c) *Research Assistants.*—The Chairman reported that Messrs. D. M. Fernando, B.Sc. (Ceylon) and W. M. S. Wijeratne, B.Sc. (Ceylon) had been appointed Research Assistants in the Botanical and Chemical Departments respectively on the approved salary scale and terms of service. They were expected to assume duties on 1st November and 8th November respectively. The appointments were approved.

8. Proposals by Director for future Salaries and Service Conditions of Staff

A memorandum by the Director containing proposals for revising the salaries and service conditions of the staff was considered. The difficulty of obtaining suitable men as Research Officers on the present salary scale was recognised and it was agreed that the proposed scales for the Director, Senior Technical Officers and Graduate Research Assistants be adopted with effect from the date when the anticipated increase in cess becomes operative. The rest of the proposals were referred to the Experimental Committee for consideration.

Mr. Griffith left the meeting.

9. Training in Rubber Cultivation

A letter from the Permanent Secretary to the Ministry of Agriculture and Lands enquiring whether a course of training in rubber cultivation could be provided for Indian graduates was considered. It was agreed that this would not be possible owing to the shortage of senior technical staff.

10. London Advisory Committee

Minutes of meetings of the Committee and the Technical Sub-Committee held on 2nd July 1948 — were tabled.

11. Publications

The Annual Report for 1947 was tabled.

The meeting then terminated with a vote of thanks to the Chair.

C. D. de FONSEKA,
Secretary-Accountant.

RUBBER RESEARCH SCHEME (CEYLON)

Minutes of the ninetieth meeting of the Rubber Research Board held at the Planters' Association Headquarters, Colombo, at 2·30 p.m. on Monday, 20th December, 1948.

Present.—Mr. D. Rhind (Director of Agriculture) in the Chair, Mr. H. E. Peries, C.C.S. (Deputy Secretary to the Treasury), Mr. W. H. Attfield, Mr. W. P. H. Dias, J.P., Mr. Noel de Silva, Mr. E. R. de Silva, Mr. T. C.

A. de Soysa, Mr. F. H. Griffith, M.P., Mr. R. J. Hartley, Mr. E. Jayewickreme, Mr. V. T. Nanayakkara, M.P., Mr. R. C. L. Notley, Mr. F. A. Obeyesekere and Mr. V. G. W. Ratnayake, M.P.

Dr. E. Rhodes, Director, was present by invitation.

A letter regretting inability to be present was received from Mr. C. A. C. Bowen.

1. Minutes

(a) *Signing.*—Draft minutes of the meeting held on 25th October 1948, which had been circulated to members, were signed by the Chairman on signification of members' assent that they were in order.

(b) *Matters arising from the minutes* — Appointment of Oidium Research Officer.—The Chairman reported that an advertisement had been issued in scientific journals in London, Holland, America, Australia, South Africa; also in Malaya and Ceylon.

2. Board

The Chairman reported that Mr. R. C. L. Notley had returned to the Island and resumed membership with effect from 2nd December, 1948 relieving Messrs. A. D. Layton and T. C. A. de Soysa who had acted for him on the Board and Experimental Committee respectively.

3. Amending Ordinance

It was reported that an amending Ordinance providing for an increased cess at the rate of 55 cents per 100 lbs. of rubber exported from Ceylon had been passed by Parliament with effect from 1st January 1949. A letter from the Permanent Secretary to the Ministry of Agriculture and Lands stating that the amending Ordinance also provided for certain changes in the constitution of the Board was read and it was noted that that was the last meeting of the Board as at present constituted. The Chairman thanked all members for the valuable advice and assistance rendered by them.

4. Director's Resignation

The Chairman reported that Dr. E. Rhodes, Director, had given 6 months' notice of resignation, owing to domestic reasons. Members expressed regret at the loss of a valuable officer. The resignation was accepted and it was agreed that the post be advertised in Ceylon and abroad.

5. Experimental Committee

Recommendations made at Meetings held on 29th November 1948

(a) *Bungalow at Nivitigalakele.*—Agreed that the vacant senior staff bungalow at Nivitigalakele be rented to Mr. J. M. H. Toussaint, Assistant Superintendent of Police, Matugama.

(b) *Proposals by Director for future salaries and service conditions of staff.*—It was noted that the Committee had recommended the adoption of the Director's proposals subject to certain amendments. The Committee's recommendations were adopted and it was agreed that the new salary scales and conditions of service should be effective from 1st January 1949.

6. Reports and Accounts

(a) *Director's report for the 3rd quarter 1948* — was approved.

(b) *Auditor's Report and Balance Sheet for 1947* — were adopted.

(c) *Supplementary vote and revote of 1947 capital votes.*—A supplementary vote (for 1949) of Rs. 2,000 was passed to cover the cost of establishing a clonal seedling nursery at Nivitigalakele for supplying material for experimental planting at Hedigalla and for issue to smallholders.

Balances of 1947 capital votes amounting to Rs. 117,968 were re-voted.

(d) *Inventory Report for 1947.*—This was approved and it was agreed that the missing and unserviceable items be written off the inventories.

(e) *Statement of Receipts and Payments for the 3rd quarter 1948* — was approved.

(f) *Estate accounts July to September 1948* — were tabled.

7. Staff

Changes in junior staff were reported.

As that was the last meeting of the Board Mr. Obeyesekere, the most senior member, referred to the hearty co-operation and assistance rendered to the Board by the Chairman, the Director and members of the staff. He proposed a vote of thanks to the Chairman and the Scheme's officers in sincere appreciation of their services. In seconding the vote of thanks Mr. Dias made special reference to the valuable services of Mr. Griffith as Chairman of the Experimental Committee for a number of years. The Chairman and the Director thanked members for the sentiments expressed.

The meeting then terminated.

C. D. de FONSEKA,
Secretary-Accountant.

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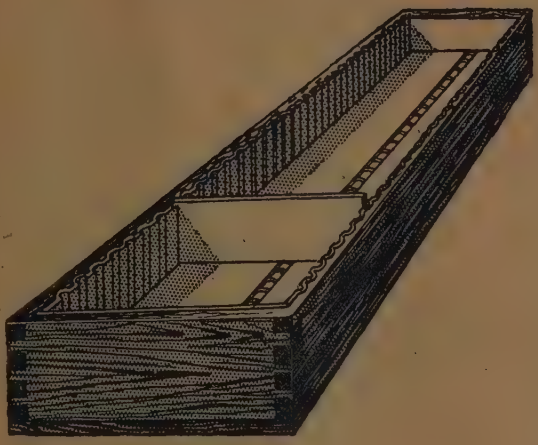

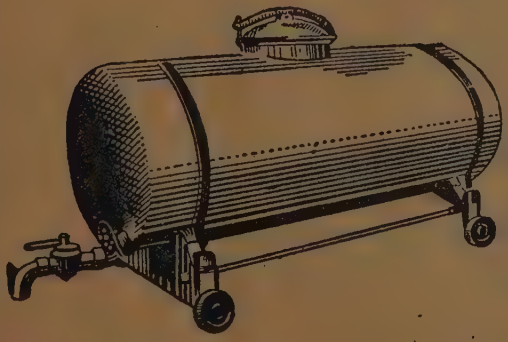

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Dr. G. A. C. Herklots

Member nominated by the Government of Ceylon:

Mr. L. Lord

Member nominated by the Governments in British Malaya:

Mr. J. Lornie, C.M.G.

Members representing Malayan Planting Interests—nominated by the Rubber Growers' Association:

Mr. P. J. Burgess (Chairman)
Mr. J. W. M. Kennedy
Sir Eric Macfadyen

Members representing Ceylon Planting Interests—nominated by the Rubber Growers' Association:

Mr. G. H. Masefield
Mr. E. W. Whitelaw
Mr. H. W. Horner

Member representing Manufacturing Interests:

Lieutenant-Colonel J. Sealy-Clarke

Ex-Officio Members:

Sir H. A. F. Lindsay, K.C.I.E., C.B.E., Director of the Imperial Institute
Professor V. H. Blackman, Director of the Botanical Laboratories, Imperial College of Science and Technology
Dr. S. P. Wiltshire, Director of the Imperial Mycological Institute.
Sir W. G. Ogg, Director of the Rothamsted Experimental Station
Sir Harold Tempany, C.M.G.
Sir John L. Simonsen, Director, Colonial Products Research Council.
Mr. J. A. Nelson, B.Sc. Secretary.

The Technical Sub-Committee consists of Members of the Advisory Committee with the following co-opted Members:

Mr. J. Denson
Mr. G. E. Coombs
Dr. Samuel Pickles
Dr. J. R. Scott
Dr. W. C. Davey
Dr. G. Gee

STAFF

Mr. G. Martin, B.Sc., A.R.I.C., F.I.R.I
Mr. H. C. Baker, M.Sc., A.R.I.C., A.I.R.I
Mr. W. G. Wren, B.Sc., A.R.C.S

RUBBER RESEARCH SCHEME (CEYLON)

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